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Questioni di Economia e Finanza

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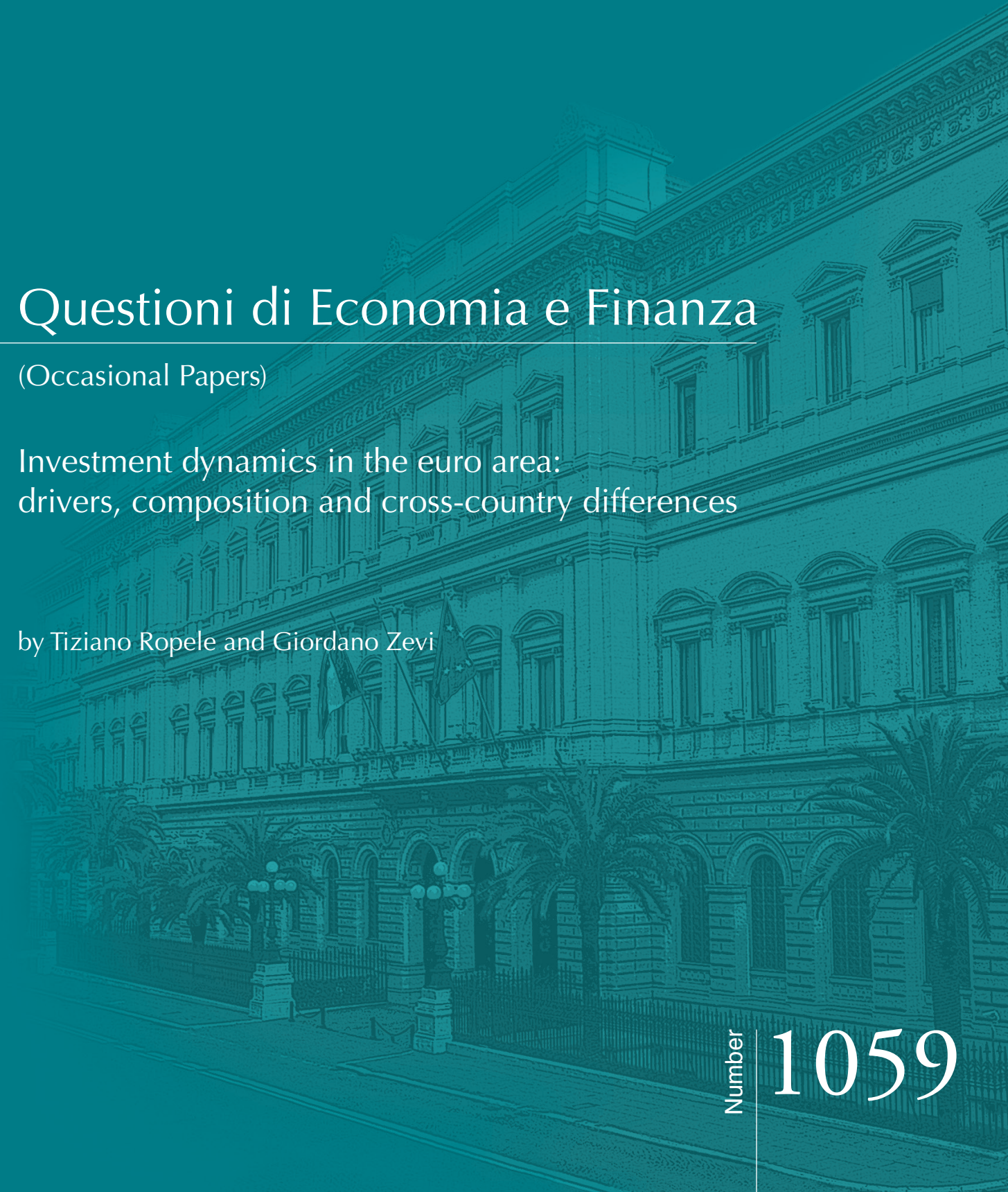

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INVESTMENT DYNAMICS IN THE EURO AREA: DRIVERS, COMPOSITION AND CROSS-COUNTRY DIFFERENCES

by Tiziano Ropele* and Giordano Zevi**

Abstract

This paper provides a comprehensive empirical assessment of investment developments in the euro area and its four largest member economies over 1996-2025, using National Accounts data disaggregated by country, asset type, and sector. Investment dynamics are tightly synchronised during systemic downturns, while recoveries are markedly heterogeneous. A shift-share decomposition shows that persistent cross-country differences in investment growth are driven mainly by within-category performance rather than by differences in allocation across assets and sectors. At the same time, investment is gradually shifting towards intangible assets, with intellectual property products displaying a sustained upward trend largely independent of the business cycle. An augmented accelerator model identifies economic activity as the main driver of investment fluctuations, with financial conditions exerting a significant influence – especially for construction – and confidence and uncertainty playing a complementary role at cyclical turning points. Estimated elasticities vary substantially across countries and asset classes, pointing to heterogeneity in shock transmission within the monetary union. A historical decomposition highlights cross-country differences in recent dynamics, with Germany's weakness reflecting structural and supply-side factors, and Italy's post-2019 recovery also driven by fiscal measures. More broadly, the post-2022 period is characterised by a generalised weakening in investment, consistent with tighter financial conditions and heightened geopolitical uncertainty.

JEL Classification: D22, E22, E32, F13, F14, F45, G21, O16.

Keywords: investment, euro area, accelerator model, financial conditions, economic uncertainty, cross-country heterogeneity.

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1. Introduction[1]

Investment is a central driver of long-run economic growth, technological progress, and structural transformation. By shaping the accumulation of productive capital, it determines not only the pace of output expansion but also the capacity of economies to adapt to evolving technological and institutional environments.

Understanding the dynamics of investment – both over time and across its different components – is therefore essential for interpreting past macroeconomic developments and assessing future growth prospects. In the euro area, this analysis is particularly relevant. Since the inception of the monetary union, member countries have exhibited marked heterogeneity in economic structures, sectoral specialisation, and financial conditions. These differences have been reflected in dissimilar investment trajectories, both in aggregate dynamics and in the composition of capital accumulation across tangible and intangible assets. Such heterogeneity has played a key role in shaping countries' resilience (or lack thereof) to major macroeconomic shocks, including the global financial crisis, the sovereign debt crisis, the COVID-19 pandemic and the energy crisis.

This paper provides a comprehensive empirical assessment of investment developments in the euro area and its largest economies over the period 1996-2025.[2] It draws on a rich and multidimensional dataset combining quarterly and annual national accounts data, disaggregated along four dimensions: time, country, asset type (including residential and non-residential construction, machinery and equipment, and intellectual property products) and sector of economic activity. This structure allows us to uncover patterns that remain hidden in aggregate data and to disentangle the respective roles of cyclical forces, structural characteristics, and country-specific factors.[3]

The analysis addresses four main research questions. First, how has investment evolved in the euro area over the past quarter century, and how have major macroeconomic episodes shaped

[1] Economic Outlook and Monetary Policy Directorate, Banca d'Italia. The views expressed in this article are our own and do not necessarily represent the views of Banca d'Italia or the Eurosystem. We would like to thank Fabio Busetti, Stefano Neri, Alessandro Secchi, Fabrizio Venditti and Roberta Zizza for useful suggestions and comments. *Corresponding author*: tiziano.ropele@bancaditalia.it.

[2] The analysis focuses on the euro area and refrains from comparisons with other advanced economies. For cross-country perspectives, including comparisons with the United States, see de Soyres et al. (2024), Hanzl-Weiss and Stehrer (2024), Andersson et al. (2025) and De Luca and Greco (2026).

[3] A closely related analysis is provided by Greco and Torrini (2026), who examine capital accumulation in Italy and other major euro area economies through a systematic cross-country comparison, with a focus on capital stock dynamics, depreciation and their implications for capital deepening and productivity.

its dynamics? Second, to what extent do cross-country differences reflect structural composition of investment – across assets and sectors – rather than differential performance within comparable categories? Third, which determinants have acted as key drivers of investment developments? Fourth, what are the main country-specific features that characterize investment dynamics in the most recent decades, and how do they differ across the largest euro-area economies?

The paper delivers four main findings, each corresponding to the research questions above. First, investment contractions are highly synchronised across euro-area countries during systemic downturns, while recoveries are markedly heterogeneous in both speed and persistence – with differences in recovery times spanning from a few years to more than a decade – particularly following financial crises. Tangible investment accounts for most of the cyclical volatility and cross-country dispersion, while intangible investment contributes primarily to structural heterogeneity in long-run growth trajectories. Asset composition is closely tied to the sectoral structure: economies with a stronger industrial base allocate relatively more resources to machinery and equipment, whereas more service-oriented economies channel a larger share towards construction. Heterogeneity within services constitutes an additional margin of differentiation. The relative weight of real estate versus knowledge-intensive activities shapes not only the composition of investment but also its responsiveness to macroeconomic conditions: economies where real estate dominates tend to exhibit higher cyclical volatility, while those with a stronger intangible component display more gradual and stable investment dynamics.

Second, a shift–share decomposition shows that persistent cross-country differences in investment growth are driven primarily by within-category performance rather than by differences in the allocation of investment across asset types and sectors. Although structural composition varies across countries, these differences account for only a limited share of aggregate divergence; instead, persistent gaps reflect country-specific factors within comparable sector–asset categories. Furthermore, investment is gradually shifting towards intangible assets, with intellectual property products displaying a sustained upward trend across countries. This has potential implications both for the cyclical sensitivity of aggregate investment and for medium-term growth.

Third, the econometric analysis, based on an augmented accelerator framework, identifies economic activity as the dominant driver of investment fluctuations. Financial conditions exert

an additional and significant influence, particularly for construction investment and during periods of financial stress, while confidence and uncertainty play a complementary role at cyclical turning points. The estimated elasticities associated with each driver vary substantially across countries and asset classes, pointing to heterogeneity in the transmission of shocks within the monetary union. For instance, financial conditions contributed strongly to the prolonged weakness of investment in Italy during the sovereign debt crisis, whereas swings in confidence and uncertainty were particularly relevant in explaining the boom-bust cycle of Spanish investment. By contrast, investment fluctuations in Germany appear to be more closely associated with economic activity, while France displays comparatively more balanced contributions across the different drivers.

Fourth, the historical decomposition highlights substantial cross-country heterogeneity in recent investment dynamics: Germany's weakness reflects structural supply-side factors not captured by standard indicators, while Italy's post-2019 recovery is largely driven by extraordinary fiscal measures. More broadly, the post-2022 period is characterised by a generalised weakening in investment, consistent with tightening financial conditions and heightened geopolitical uncertainty.

The rest of the paper is organized as follows. Section 2 describes the analytical framework and the data. Section 3 documents a set of stylised facts on investment dynamics in the euro area and its largest member economies. Section 4 presents the results of a shift–share decomposition to quantify the relative contributions of compositional and within-category factors to investment growth. Section 5 sets out the augmented accelerator model, discusses the estimation results, and presents the historical decomposition of investment drivers, both at the euro-area level and across countries. Section 6 concludes.[4]

2. Analytical Framework and Data

This section sketches the analytical framework used to interpret investment dynamics and describes the data. A central distinction is between two sources of variation in aggregate investment: differences in composition, reflecting the allocation of investment across asset types and sectors, and differences in performance within asset-sector categories. This

[4] Several Appendices provide additional details on data sources, medium-term investment trends, and an asset-level analysis of investment drivers for Italy.

distinction provides the lens through which cross-country heterogeneity is interpreted and underpins the shift–share decomposition performed in Section 4.

2.1 Framework for Interpreting Investment Dynamics

Aggregate investment can be expressed as the sum of investment across sector–asset pairs. This representation highlights two margins of adjustment. The between-component margin captures changes in the allocation of investment across sectors and asset types, while the within-component margin reflects changes in investment intensity within a given sector–asset category. These two margins map naturally into structural and cyclical dimensions of investment dynamics. Cyclical forces primarily affect investment within sector–asset categories, as firms adjust their investment decisions in response to fluctuations in economic activity, financing conditions, and uncertainty. By contrast, structural factors operate through the composition of investment across sectors and asset types, reflecting different trends in economic structure and specialization.

Different types of investment exhibit heterogeneous sensitivities to economic conditions. As an example, investment in machinery and equipment tends to respond strongly to fluctuations in economic activity, while investment in intellectual property products evolves gradually and is less sensitive to the business cycle. As a result, the composition of investment across sectors and asset types plays a key role in shaping aggregate dynamics and economies with different sectoral structures respond differently to common shocks.

2.2 Data

The empirical analysis is based on National Accounts data on gross fixed capital formation. Investment is disaggregated along four dimensions: time, country, sector, and asset type. Asset categories include residential (dwellings) and non-residential (other buildings and structures) construction, machinery and equipment and weapon systems[5], and intellectual property products,[6] while the sectoral breakdown follows the NACE Rev. 2 classification at the section level (which comprises 21 sectors), ensuring comparability across countries and over time. All variables are expressed in real terms using chain-linked volume measures.

The sample spans the period from the mid-1990s to 2025 and covers the euro area aggregate and its four largest economies: Germany, France, Italy, and Spain. Quarterly data are used to

[5] Hereafter, we refer to this category as machinery and equipment.
[6] Given the negligible share of investment in cultivated biological resources (on average less than 0.5% of total investment), this asset category is excluded from the analysis.

analyze cyclical dynamics, while annual data are employed when a finer sectoral and asset breakdown is required.

The dataset is complemented with a set of macroeconomic and financial indicators, including measures of economic activity, interest rates, credit conditions, confidence, and policy uncertainty.[7]

3. Stylised Facts on Investment in the Euro Area

This section presents a set of "stylised facts" across countries, asset types, and sectors.

3.1 Aggregate Investment Over the Business Cycle

We begin by examining the evolution of real gross fixed capital formation over the period 1996–2025 (Figure 1) partitioning the sample into five phases: (i) the pre-2008 expansion, (ii) the global financial and sovereign debt crises (2008–13), (iii) the post-crisis recovery (2014–19), (iv) the COVID-19 shock (2020–21), and (v) the monetary policy tightening and resilience phase (2022–25).[8]

Three stylised facts emerge.

First, investment dynamics are tightly synchronised during systemic downturns. As shown in Figure 2, in both 2009 and 2020, investment contracted sharply in the euro area and nearly simultaneously across its major countries. The adjustment unfolded within a few quarters and reached broadly comparable magnitudes, typically in the range of cumulated decreases in total investment of -10 to -15 per cent. This synchronisation of investment contractions during systemic downturns is consistent with the broader literature on global recessions (Kose et al., 2020).[9]

Second, cross-country heterogeneity emerges during recoveries and is shaped by the nature and the length of the recessions. Figure 3 shows that, unlike downturns, recoveries diverge substantially in both speed and persistence. Following the global financial crisis Germany recovered quickly, while France needed a relatively longer adjustment period. For Italy and Spain, the global 2008-09 recession foreshadowed a further dip in investment in 2011-13, due to the sovereign debt crisis, which left persistent scars. Italy required more than a decade to

[7] A detailed description of the data sources and variable construction is provided in Table A1 in the Appendix A.
[8] Table A2 in Appendix A reports a concise description of the main features of each of these phases.
[9] Licchetta and Meyermans (2022) analyse the impact of the COVID-19 pandemic on gross fixed capital formation in the euro area, focusing on the role of lockdown measures, economic conditions, and policy responses.

recover the investment gap, while in Spain, which experienced the deepest contraction due to the collapse of a property bubble, aggregate investment did not return to its pre-crisis level by end-2025. This is consistent with a large body of the literature documenting persistent output and investment losses following financial crises, often associated with hysteresis mechanisms and disruptions in financial intermediation (Cerra and Saxena, 2008; Jordà et al., 2013; Blanchard et al., 2015; Cerra et al., 2021).

Third, after the pandemic the recovery was rapid but uneven. The contraction induced by the COVID-19 shock was sharp but short-lived and was followed by a markedly faster rebound than in the aftermath of the global financial crisis. At the euro-area level, investment not only recovered quickly but exceeded its pre-pandemic level within a relatively short period. This pattern also likely reflected the scale and composition of policy support, including both national fiscal measures and EU-level investment programmes.[10] However, this strong recovery was not uniform across countries and proved only partially sustained over time. While Italy and Spain experienced a prolonged expansion in investment – particularly strong in the former[11] – France saw a rapid rebound followed by a stagnation, whereas investment in Germany declined.[12]

Taken together, these patterns suggest that cross-country differences in investment dynamics arise predominantly during the recovery phase rather than at the onset of downturns and are especially pronounced following financial crises.[13]

3.2 Investment by Asset Type: Cyclical and Structural Patterns

The investment patterns documented in Section 3.1 reflect not only differences in exposure to shocks, but also heterogeneity in the composition of investment across asset types. Disaggregating investment allows us to identify which components drive cyclical volatility and which account for persistent divergence in capital accumulation.

Figures 4 and 5 highlight substantial differences in the behaviour of investment in construction, machinery and equipment, and intellectual property products (IPP, henceforth).

[10] See also Licchetta and Meyermans (2022).
[11] While investment in Italy has surpassed its pre-global financial crisis levels since early 2023, in Spain it remained approximately 3 per cent below that benchmark as of the end of 2025. On the weaker post-pandemic investment dynamics compared to the strong rebound and expansion in economic activity see Biljanovska (2025).
[12] See Deutsche Bundesbank (2023) for a discussion of the key structural factors shaping investment trends in Germany in the post-pandemic period, including the role of high energy costs, labour shortages and regulatory burdens; for a more specific focus on manufacturing developments, see Flaccadoro (2024).
[13] Further evidence on medium-term investment dynamics, based on simple trend estimates, is reported in Appendix B.

Machinery and equipment investment exhibits the strongest pro-cyclical pattern. Contractions during both the global financial crisis and the pandemic are immediate and pronounced across all countries. However, medium-term dynamics diverge significantly. Germany experiences relatively rapid recoveries following both crises, whereas Italy undergoes a prolonged period of subdued accumulation after the sovereign debt crisis. Notably, cross-country dispersion arises primarily from differences in recovery speed rather than from the initial contraction.

Construction investment is considerably more heterogeneous across countries and accounts for a substantial share of aggregate divergence. Spanish residential construction displays a pronounced boom-bust cycle, characterised by rapid pre-2008 expansion followed by a prolonged correction. In contrast, Italy exhibits a more gradual but persistent decline, with residential investment remaining structurally depressed throughout the 2010s. Later, in the post-pandemic recovery, this component recorded an unprecedented rise sustained by exceptional fiscal incentives. Similar patterns, though less volatile, emerge for non-residential construction. France and Germany display comparatively smoother dynamics, consistent with lower exposure to housing imbalances and more stable domestic demand conditions.

Investment in IPP displays a sustained upward trend across all countries, with limited cyclical sensitivity, consistent with a gradual shift in capital formation towards knowledge-based assets. This expansion is particularly pronounced in Germany and France, and at the euro-area level (also thanks to the contribution of Ireland), more moderate in Italy. IPP investment appears to be driven by long-run structural transformation rather than by short-term demand fluctuations.[14]

These results show that tangible investment accounts for most of the cyclical volatility and medium-term dispersion across countries, while intangible investment primarily contributes to structural differences in long-run growth trajectories.

To further characterise the cyclical properties of investment, Table 1 reports three summary indicators: volatility, cyclicality, and asymmetry, computed over the period 1996Q1–2025Q4. Volatility captures the short-term variability of investment growth, cyclicality measures the

[14] Thum-Thysen et al. (2019) analyse investment dynamics in Europe by distinguishing between tangible and intangible assets and examining differences in their drivers and barriers, showing that regulatory factors and human capital are particularly important for intangible investment, whereas financial conditions matter more for tangible assets. De Luca and Greco (2026) provide a cross-country comparative analysis of developments in intangible investment, including components not captured in national accounts.

elasticity of investment to GDP, and asymmetry identifies differences in responses during downturns relative to expansions.[15]

Three main findings emerge. First, machinery and equipment investment displays the highest degree of cyclicality across all countries, with elasticities well above unity – reaching 2.2 in the euro area and 2.7 in Germany – consistent with standard accelerator mechanisms. This component also exhibits relatively high volatility, due to its sensitivity to demand expectations and financing conditions. By contrast, as already noted, investment in IPP shows much lower cyclicality.

Second, construction investment is characterised by pronounced asymmetry. In all countries, residential investment reacts more strongly during downturns than during expansions, with particularly large effects in Italy and Germany. This pattern is consistent with financial frictions, credit constraints, and adjustment costs that amplify contractions in housing investment. Non-residential construction displays similar, though generally less pronounced, asymmetries.

Third, in the considered period, Italy stands out for its higher volatility across asset classes – especially in construction – together with strong asymmetry, indicating greater sensitivity to adverse shocks. Germany combines high cyclicality in machinery investment with more moderate volatility, suggesting a more resilient structure. France exhibits a more balanced profile, with relatively lower volatility and broadly similar cyclical elasticities across assets. Finally, Spain displays elevated volatility and asymmetry in construction, consistent with housing-related boom–bust dynamics.

3.3 Investment by Sector of Activity: Structure and Allocation

We next examine the mapping between sectoral structure and asset composition. Figures 6 and 7 report the sectoral allocation of real gross fixed capital formation averaged over the period 2022–24. These diagrams illustrate how investment demand originating from economic sectors is distributed across asset categories. Shares are expressed as percentages of total investment.

Figure 6 presents the euro-area aggregate, combining a broad sectoral aggregation (agriculture and construction, industry, and services) with a more detailed decomposition of service activities – namely business services, ICT, real estate, trade and transport, public and social

[15] Further details on the constructions of these indicators are provided in the notes to Table 1.

services, and other services. Figure 7 reports the corresponding allocation separately for Italy, Germany, France, and Spain, allowing for a cross-country comparison of sector–asset linkages.

Taken together, the figures provide a snapshot of how production specialization translates into distinct patterns of capital accumulation. At the euro-area level, services account for the largest share of total investment, followed by industry net of construction. However, the sector–asset mapping reveals important differences. Investment in residential and non-residential buildings is predominantly generated within services, reflecting the dominant role of the real estate sector: at the euro-area level, real estate alone accounts for over 40 percent of service-sector investment and directs most of its spending towards residential buildings. By contrast, the industry share of investment rises sharply in machinery and equipment, consistent with manufacturing-driven capital deepening. Investment in IPP is also concentrated in services – particularly in business services and ICT – highlighting the key role of knowledge-intensive activities in intangible capital formation.

Cross-country differences are substantial. In Italy investment is strongly tilted towards construction and away from intangible capital. The real estate sector dominates the service side, directing an exceptionally large share of investment towards residential buildings.[16] At the same time, the contribution of ICT and business services to IPP formation is limited, reflecting the modest weight of knowledge-intensive activities. Also, in Italy manufacturing remains central to capital accumulation in tangible assets: is the only major economy where the industry share of investment in machinery and equipment exceeds the services share. These features – high construction intensity, limited intangible investment, and a manufacturing-centric machinery base – make Italy's investment structure comparatively more exposed to cyclical volatility and less oriented towards long-run knowledge accumulation, and complement the results shown in Table 2.

In Germany the investment structure is relatively balanced. Both investment in machinery and equipment and IPP investment are important. The former is tightly linked to manufacturing, while the latter is strongly supported by R&D expenditure in manufacturing and in ICT and business services. This dual specialization in tangible and intangible capital potentially

[16] It should be noted, however, that this concentration is measured over the period 2022-24, when the Superbonus scheme was still partially in operation, likely amplifying the residential construction share beyond its long-run level. The compositional bias towards construction and away from intangible investment nonetheless predates this policy episode: even prior to 2020, Italy allocated a comparatively larger share of investment to residential and non-residential buildings and a smaller share to IPP than Germany or France, reflecting the lower weight of knowledge-intensive activities in its production structure (see Figures 4 and 5).

underpins productivity growth and resilience to sector-specific shocks, though it also implies greater exposure to external demand conditions given the export-oriented nature of German industry.

France exhibits a relatively diversified asset mix, with services dominating total investment but without the pronounced concentration on residential real estate observed in Italy. Business services and ICT contribute meaningfully to IPP formation, while machinery investment remains relevant, though less tightly linked to industry than in Germany.

Spain shares with Italy a pronounced weight of real estate within the services sector, which directs a large share of investment towards residential buildings. This construction concentration reflects a more service-driven economy rather than a dual manufacturing-construction model as in Italy. The contribution of ICT and business services to IPP formation is limited, pointing to modest intangible capital intensity. Notably, the concentration of real estate investment towards residential buildings is proportionally higher in Spain than in France, placing Spain structurally closer to the Italian model than to the German or French one. Overall, Spain's investment structure combines high construction exposure – historically associated in this country with boom–bust dynamics – with relatively modest intangible accumulation, suggesting greater vulnerability to housing-related cycles and limited structural drivers of long-run productivity growth.

Two broader conclusions emerge. First, asset composition is closely tied to sectoral structure: economies with a stronger industrial base allocate relatively more resources to machinery and equipment, whereas more service-oriented economies – particularly those where real estate plays a prominent role – channel a larger share towards construction. Second, heterogeneity within services constitutes an additional and important margin of differentiation. The relative weight of real estate versus knowledge-intensive activities shapes not only the composition of investment but also its responsiveness to macroeconomic conditions: economies where real estate dominates tend to exhibit high cyclical volatility, while those with a stronger intangible component display more gradual but persistent capital deepening. These structural differences have direct implications for the cross-country divergence in investment dynamics documented in the preceding sections and provide the motivation for the shift–share decomposition presented in Section 4.

4. A Shift–Share Decomposition of Investment Growth

Having documented substantial cross-country heterogeneity, we employ a shift-share analysis to quantify the extent to which cross-country divergence is driven by differences in exposure to faster- or slower-growing asset categories, as opposed to relative over- or under-performance within each asset class.

Let $g_{i,t}$ denote real investment growth in country *i* at time *t*, computed as the percentage change in aggregate investment. We index investment categories by $j \in \mathfrak{J} \equiv \mathbb{S} \times \mathbb{A}$, where $\mathbb{S}$ denotes the set of sectors and $\mathbb{A}$ the set of asset types. Each element *j* therefore represents a sector-asset pair. Aggregate investment growth can be written as the weighted average of sector–asset specific growth rates:

$$g_{i,t} = \sum_{j \in \mathfrak{J}} w_{i,j,t-1}\, g_{i,j,t} \qquad (1)$$

where $w_{i,j,t-1}$ denotes the lagged share of investment in sector–asset cell *j*, and $g_{i,j,t}$ is the corresponding growth rate. The use of lagged weights ensures that contemporaneous changes in composition do not mechanically affect the decomposition.

Following the standard shift–share approach, we decompose aggregate investment growth into three components:

$$g_{i,t} = g_{EA,t}^{[-i]} + \sum_{j \in \mathfrak{J}} w_{i,j,t-1}\,(g_{EA,j,t}^{[-i]} - g_{EA,t}^{[-i]}) + \sum_{j \in \mathfrak{J}} w_{i,j,t-1}\,(g_{i,j,t} - g_{EA,j,t}^{[-i]}) \qquad (2)$$

where $g_{EA,t}^{[-i]}$ denotes "adjusted" aggregate euro-area investment growth and $g_{EA,j,t}^{[-i]}$ the "adjusted" aggregate euro-area growth rate of sector-asset cell *j*. To avoid mechanical correlations between country-level and aggregate dynamics, the euro-area aggregates are "adjusted" in the sense that they constructed excluding country *i* ("*leave-one-out approach*"), as indicated by the use of superscript "$[-i]$". The first term on the right-hand side in equation (2) captures the "adjusted" euro-area investment cycle (*aggregate component*), the second reflects the contribution of asset composition (*sector–asset composition effect*), and the third measures country-specific performance within each asset-sector category relative to the euro-area benchmark (*country-specific effect*). The decomposition is computed at the annual frequency.

The results shown in Figure 8 highlight that there are two robust patterns in investment dynamics across the main euro-area economies.

First, the sector–asset composition effect (green bars) plays only a limited role in explaining cross-country differences in investment growth. The contribution of composition is consistently small across countries and over time, despite the substantial heterogeneity in exposure to construction, machinery, and IPP documented in Section 3. This indicates that differences in investment structures translate only marginally into aggregate growth differentials. Persistent divergence in investment dynamics since the sovereign debt crisis cannot therefore be primarily attributed to structural differences in asset allocation.

Second, cross-country divergence is mainly driven by the country-specific component, which captures relative performance within comparable sector–asset cells. This component (yellow bars) exhibits substantial variation across countries and over time. In the aftermath of the global financial crisis and during the sovereign debt crisis, for instance, Italy and Spain display large negative contributions, pointing to sustained underperformance relative to the euro-area benchmark within the same asset categories. By contrast, Germany shows comparatively stronger performance, while France remains closer to the euro-area average. The post-pandemic period rebound differs in magnitude and composition across economies, also due to country-specific factors. In particular, the strong acceleration observed in some countries – most notably Italy – appears to be driven by country-specific factors rather than structural shifts in investment composition. In Germany and France, on the other hand, country-specific factors offset the impact of the common cyclical recovery (grey bars).

Overall, the evidence indicates that cross-country differences in investment growth within the euro area are primarily shaped by relative performance within sector–asset categories, rather than by differences in investment composition.

5. What Drives Investment? Evidence from an Augmented Accelerator Framework

In this section we estimate investment equations for the euro area and its largest member economies. We focus on the euro area excluding Ireland, as Ireland's exceptionally high investment-to-GDP ratio (driven by the multinational-related IPP allocation across countries) distorts the euro-area aggregate.[17]

[17] See Andersson et al. (2024) for an analysis of the effects of activities of multinational enterprises in Ireland on euro-area GDP and its main components. Euro-area level survey and financial variables are used in the estimation, under the assumption that Irish data have a negligible weight in euro-area-wide business surveys.

To further characterize the relative importance of the different drivers over time, we complement the analysis with a historical decomposition of investment growth.

The econometric analysis is based on quarterly data spanning the period 2003Q1-2025Q4. The dataset includes real GDP, real gross fixed capital formation (both in aggregate and across seven asset categories), inflation and inflation expectations, interest rates, business confidence indicators, and measures of uncertainty. The empirical specification extends the standard accelerator model by incorporating financial conditions, sentiment indicators, and policy uncertainty measures. The dependent variable is the year-on-year growth rate of real gross fixed capital formation, $\log(I_t/I_{t-4})$. The set of regressors, selected after a careful general-to-specific procedure, includes: the year-on-year real GDP growth $\log(Y_t/Y_{t-4})$, both current and with one-quarter lag, capturing accelerator effects; the user cost of capital (UCC)[18], introduced with two-quarter lag to account for investment planning and implementation delays; indicators of financial constraints (FIN) and business confidence (ESI) reflecting current finance access conditions and firms' expectations; and the first-difference of the Economic Policy Uncertainty (EPU)[19] index, as a proxy for unexpected changes in uncertainty. All specifications are estimated separately by country and asset class, including aggregate investment, to capture heterogeneity in investment dynamics. [20]

The baseline equation is given by:

$$\log\left(\frac{I_t}{I_{t-4}}\right) = \alpha + \sum_{k=0}^{1} \beta_k \log\left(\frac{Y_{t-k}}{Y_{t-k-4}}\right) + \gamma \cdot UCC_{t-2} + \mu \cdot FIN_t + \theta \cdot ESI_t + \lambda \cdot \Delta(EPU_t) + \epsilon_t \qquad (5.1)$$

where the user cost of capital is defined as $UCC_t = (r_t + \delta)P_t^I/P_t^Y$, where r is the real interest rate, computed as the nominal interest rate minus the expected consumer price inflation one-year ahead.[21] δ denotes the depreciation rate, while P^I and P^Y are the investment and the GDP deflators.

Estimation results for the euro area excluding Ireland and the countries are reported in Table 2. For aggregate investment, almost all coefficients are statistically significant and display the

[18] User cost of capital is the economic cost of owning a piece of equipment or building. It combines the interest that the firm could earn by not buying it, how fast it wears out (depreciation), and how its price is changing relative to other goods.
[19] See Baker, Bloom and Davis (2016). The EPU for the euro area is the GDP-weighted average of the EPU for Germany, France, Italy and Spain.
[20] The model is estimated by ordinary least squares with robust standard errors, both at the country level and for the euro-area aggregate.
[21] Inflation expectations are obtained from Consensus Forecasts and converted to quarterly frequency by taking simple averages of the monthly data.

expected signs, consistent with standard theoretical priors.[22] By contrast, estimating the model at the asset level leads several coefficients to lose statistical significance, suggesting that a common set of regressors may not fully capture the heterogeneity in the determinants of different types of investment.

5.1 Drivers of Investment in the Euro Area

Figure 9 reports the historical decomposition of year-on-year investment growth in the euro area, both in aggregate and across its main components over the period 2003-25. The fitted values from the estimated model are broken down into the contribution of three groups of drivers: (i) economic activity, capturing accelerator effects; (ii) financial conditions, proxied by the user cost of capital and credit constraints; and (iii) confidence and uncertainty, measured by sentiment indicators and policy uncertainty. All contributions are expressed as deviations from their historical means, so that positive (negative) values indicate above- (below-) average contributions to investment growth.

Several findings emerge from the decomposition.[23] First, economic activity (blue bars) is the dominant driver of investment fluctuations across almost all asset classes and throughout the full sample period, in line with the empirical evidence surveyed for neoclassical models in Chirinko (1993). Its contribution is strongly procyclical, turning sharply negative during major downturns, like the global financial crisis and the COVID-19 shock, and recovering during subsequent expansions.

Second, financial conditions exert a quantitatively important and persistent influence, over and above that of economic activity, for residential and non-residential construction. This reflects the nature of the underlying investment. Residential construction is closely tied to mortgage conditions and borrowing costs. Non-residential construction typically involves large-scale projects (e.g. commercial buildings, logistics infrastructure, and public facilities) that require substantial upfront investment and are often financed through borrowing. The role of real estate as collateral may further amplify these effects, especially during periods of financial stress. Consistent with this interpretation, the negative contribution of financial conditions is

[22] Output growth enters positively (accelerator mechanism); the user cost of capital has a negative effect; tighter financial conditions (higher financial obstacles) reduce investment; confidence has a positive effect; and higher policy uncertainty dampens investment in line with real options theory.

[23] For earlier analyses on the drivers of investment in the euro area see, e.g., Mojon, Smets, and Vermeulen (2002), European Commission (2015), Barkbu et al. (2015). More recent works include Battistini and Gareis (2024), Gareis (2026) and Andersson et al. (2025).

most pronounced during the sovereign debt crisis, particularly in Italy and Spain among the larger countries.

Third, confidence and uncertainty (red bars) play a meaningful, albeit secondary, role relative to economic activity and financial conditions. Consistent with the real options literature (Dixit and Pindyck, 1994), their contribution becomes more pronounced at cyclical turning points, when heightened uncertainty and weaker sentiment tend to delay investment decisions. This is particularly evident during the global financial crisis in 2008-09 and the COVID-19 shock in 2020-21, when deteriorating confidence reinforces the negative contributions from economic activity and financial conditions.

The residual component – capturing variations unexplained by the model – is generally small.

5.2 Cross-Country Differences in Investment Drivers

Figure 10 reports the cumulative contributions of the main drivers of investment growth across five sub-periods by country.[24] Germany displays a distinct investment pattern relative to its euro-area peers. During the pre-crisis expansion and the 2013-19 recovery, investment growth remained above its historical mean, driven primarily by economic activity and with a limited role of financial conditions. This configuration is consistent with Germany's relatively low corporate leverage, stable financing conditions and export-led growth model. By contrast, the most recent sub-periods (2020-22 and 2022-25) are characterized by a marked and persistent deterioration, with large negative contributions from economic activity accompanied by a sizable negative residual component. This pattern is consistent with the structural weaknesses highlighted in many recent studies on the German economy, including declining competitiveness in the automotive sector, elevated energy costs following the 2021-22 energy price shock, and weaker external demand, especially from China (OECD, 2025; German Council of Economic Experts, 2024; Flaccadoro, 2024). The prominence of the residual component suggests that these structural factors operate through channels – such as sectoral reallocation and supply-side constraints and possibly in a non-linear fashion – not fully captured by the model's baseline specification.

France exhibits a more balanced decomposition than Germany and Italy. In the pre-global financial crisis period, confidence and uncertainty make a relatively stronger contribution – possibly reflecting the buoyancy of domestic demand – while financial conditions play a limited

[24] For early studies on investment dynamics in selected European countries see Bond et al. (2003), Pérez Ruiz (2014).

role, consistent with comparatively stable financing conditions. The 2007-13 contraction is somewhat less severe than in Italy. In the most recent period (2022-25), the decomposition is characterized also in this case by a large negative residual component, pointing to country-specific factors not captured by the model's baseline specification, potentially related to fiscal consolidation dynamics and structural uncertainty associated with domestic political developments.

Italy exhibits the most pronounced variation across sub-periods, reflecting first the well-documented structural fragilities of its economy (Bugamelli et al., 2018, and the references therein), then a stronger-than-expected recovery after the pandemic. During the pre-crisis expansion (2000-07), the contribution of economic activity is modest, while the impact of financial conditions is slightly negative. The 2007-2013 period is characterised by a deep and broad-based contraction, with all drivers contributing negatively and a large negative residual component, in line with Italy's protracted double-dip recession and banking sector stress.[25] In the subsequent phase (2013–19), contributions remain overall close to zero, pointing to a weak and incomplete recovery of investment. Modest positive contributions from economic activity and confidence are largely offset by still subdued financial conditions. This prolonged weakness of investment reflects a combination of subdued demand, tight financing conditions, and structural constraints on firm growth, despite the implementation of several structural reforms aimed at supporting economic activity.[26] By contrast, the most recent sub-periods (2019-22 and 2022-25) show investment above its historical mean, supported by economic activity, financial conditions, and a large positive residual. The latter likely reflects the impact of extraordinary fiscal measures, most notably the Superbonus scheme for residential renovation introduced in 2020, which triggered a sharp increase in construction investment not captured by standard macroeconomic indicators (Banca d'Italia, 2023). This was followed by the National Recovery and Resilience Plan (NRRP), which has supported investment more broadly, particularly in non-construction components since 2024.[27]

[25] See also Busetti et al. (2016).
[26] In a complementary analysis of Italian investment developments over the past three decades, Mori and Ropele (2026) employ a Bayesian structural VAR to identify demand and supply shocks and disentangle their transitory and permanent components. They find that the prolonged weakness in investment following the global financial and sovereign debt crises was largely driven by persistent negative supply shocks – consistent with a deterioration in productive capacity – whereas the post-pandemic recovery has been primarily supported by favourable and persistent demand shocks, despite the simultaneous presence of adverse, albeit more limited, supply disturbances.
[27] See Caivano and Mangiante (2026).

Finally, Spain exhibits the most distinctive decomposition among the countries considered, with confidence and uncertainty emerging as the dominant driver across all sub-periods. During the pre-crisis expansion (2000-07), investment is well above its historical mean, driven primarily by a strong positive contribution from confidence and uncertainty, with more limited roles for economic activity and financial conditions. This pattern is consistent with the boom-bust cycle in Spanish investment, which was concentrated in real estate and construction sectors and was fuelled by an extraordinary expansion of credit and an exuberant sentiment environment. The crisis period (2007-13) represents the most severe contraction in the sample across all countries considered, with investment falling approximately 9 percent below its historical mean. This decline is largely driven by a reversal in the contribution of confidence and uncertainty, while financial conditions play a comparatively smaller role. This outcome is likely due to the strong correlation between the tightening of credit, which was partially driven by the collapse in collateral values (house prices fell strongly), and the worsening of confidence and uncertainty. This latter driver could have picked up in part the impact of the deterioration of financial conditions. In the subsequent phase (2013-19), investment recovers modestly, supported primarily by improving confidence, while economic activity contributes little and financial conditions remain slightly negative. The 2019-22 period shows investment slightly below the historical mean, accompanied by a negative residual component. Finally, in the most recent period (2022-25), investment returns above its historical average, driven by positive contributions from confidence and economic activity. The positive residual component possibly reflects the stronger recovery of the Spanish economy relative to its peers and the implementation of the Next Generation EU programmes.

In sum, this evidence points to three main insights. First, economic activity is the primary driver of investment fluctuations across countries and asset classes, with financial conditions playing an additional and particularly relevant role for construction. Confidence and uncertainty contribute mainly at cyclical turning points. Second, the relative importance of these drivers varies significantly across countries, reflecting heterogeneity in the transmission of macroeconomic and financial shocks. Third, except for Italy and Spain, the post-2022 period is characterised by a broad-based weakening in investment dynamics, associated with adverse contributions from confidence and uncertainty and sizeable residual components, especially in some countries.

6. Conclusions

This paper offers a comprehensive empirical assessment of investment dynamics in the euro area and its four largest member economies over the past quarter century. The analysis draws on a multidimensional dataset combining quarterly and annual national accounts data disaggregated along four key dimensions - time, country, asset type, and sector of economic activity - and complements the descriptive evidence with an econometric investigation of the principal determinants of investment fluctuations.

The descriptive analysis establishes a set of stylised facts. Investment contractions are highly synchronised across euro area countries during systemic downturns, reflecting the predominance of common aggregate shocks in driving short-run fluctuations in capital formation. By contrast, cross-country heterogeneity emerges predominantly during the recovery phase and was especially pronounced in the aftermath of financial crises, when balance-sheet constraints, credit conditions, and structural impediments gave rise to persistent divergence in investment trajectories. Differences in the composition of investment across countries broadly reflect the structural heterogeneity in the sectoral and asset allocation of euro area economies. In particular, the relative weight of construction, machinery and equipment, and intellectual property products varies substantially across countries, mirroring differences in economic structure and specialisation patterns. While these compositional factors shape the level and cyclical sensitivity of investment, they play a limited role in explaining cross-country developments over time, which is instead driven primarily by within-category performance as confirmed by a shift-share decomposition analysis.

The econometric analysis suggests that economic activity emerges as the dominant driver of investment fluctuations across all asset classes and countries considered, consistent with the neoclassical accelerator mechanism. Financial conditions exert a quantitatively significant and persistent influence on capital formation with their contractionary contribution being most pronounced during the sovereign debt crisis of 2011-13, a period characterised by severe financial market fragmentation and a sharp tightening of bank lending standards across some euro area member states. Confidence and uncertainty play a non-negligible role, especially at cyclical turning points, consistent with the real options framework and the empirical evidence surveyed, among others, in Bloom (2009).

At the asset class level, the Italian decomposition highlights the heterogeneous sensitivity of different forms of capital to the three groups of drivers. Construction investment responds most

strongly to financial conditions and the user cost of capital. Investment in machinery, equipment, and transport is characterised by a prominent role of confidence and uncertainty, reflecting the high adjustment costs and limited reversibility of these asset categories. Intellectual property products exhibit an unusually large and persistent residual component across virtually all sub-periods, suggesting that intangible investment in Italy responds primarily to sectoral dynamics and innovation policy incentives that are not adequately captured by standard aggregate macroeconomic and financial indicators.

Several policy implications follow from these findings. Sustainable convergence in capital accumulation requires improvements in the underlying country-specific determinants of investment intensity (encompassing macroeconomic stability, the quality of financing conditions, and the availability of targeted incentives for productivity-enhancing investment). Second, the ongoing compositional shift of capital accumulation towards intangible assets and knowledge-intensive activities – documented across all countries in the sample – calls for a reassessment of investment support policies. Since intangible investment depends more heavily on systemic innovation capacity, human capital, and access to risk financing than traditional tangible investment, policies targeting these dimensions are likely to become increasingly important for sustaining capital accumulation and supporting medium-term growth.

Looking forward, the large and persistent residual components observed across different countries and asset classes in the most recent period suggest that the standard set of macroeconomic and financial indicators employed in the investment literature might be insufficient to account for the full range of forces currently shaping capital formation in the euro area, including geopolitical uncertainty, structural energy price shifts, supply chain disruptions, and the investment implications of the green and digital transitions. Incorporating these additional determinants into the modelling framework and developing more granular measures of investment expectations and financing conditions, combining the country, asset and sector level, represent productive directions for future empirical research.

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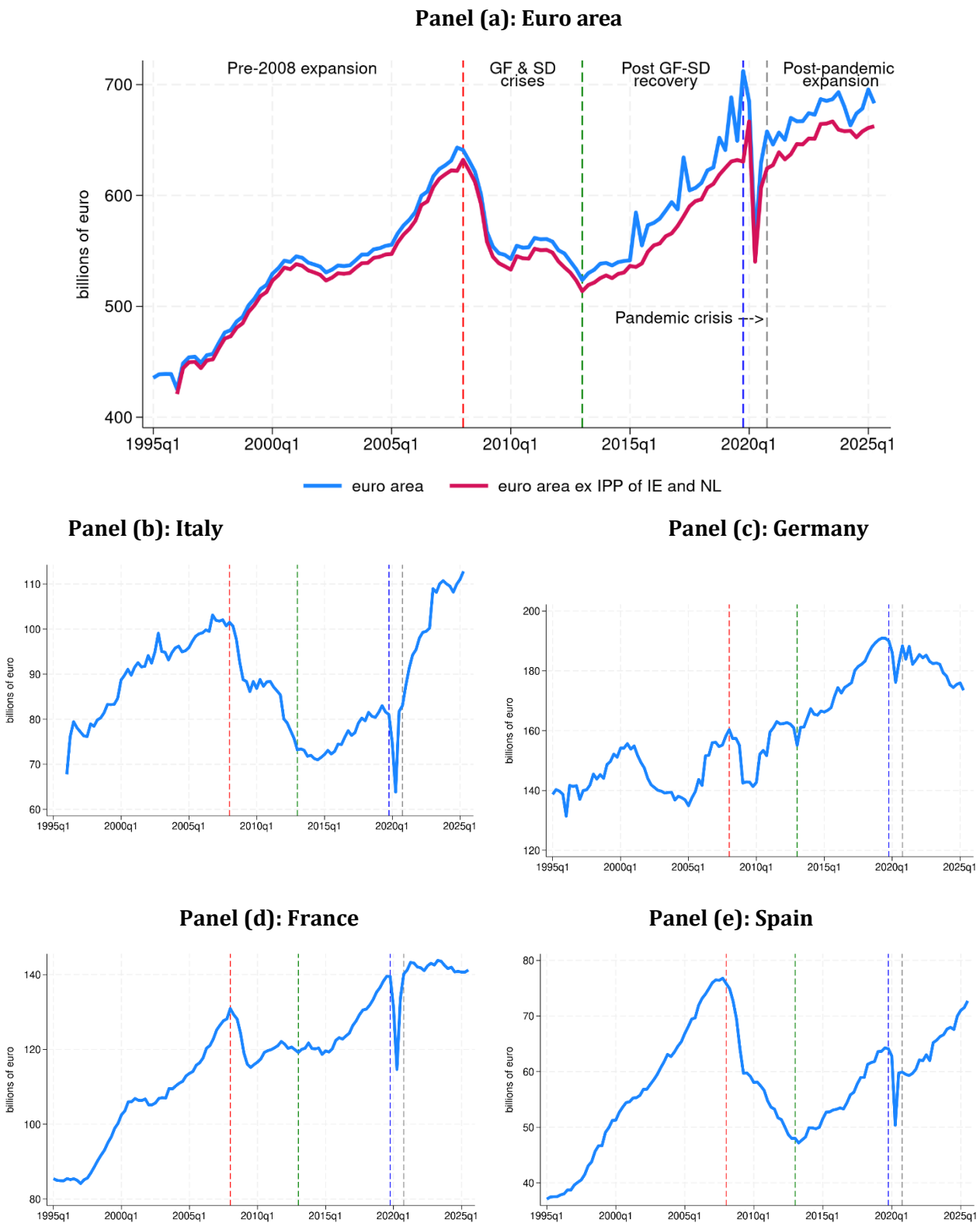
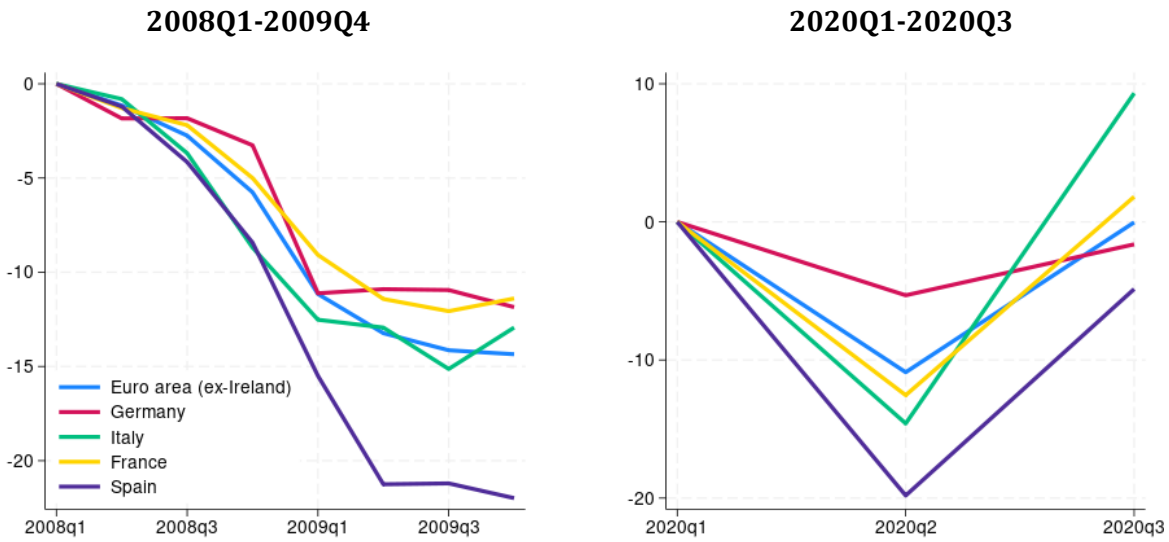
Figures and Tables

Figure 1: Real Gross Fixed Capital Formation in the Euro Area and Major Countries



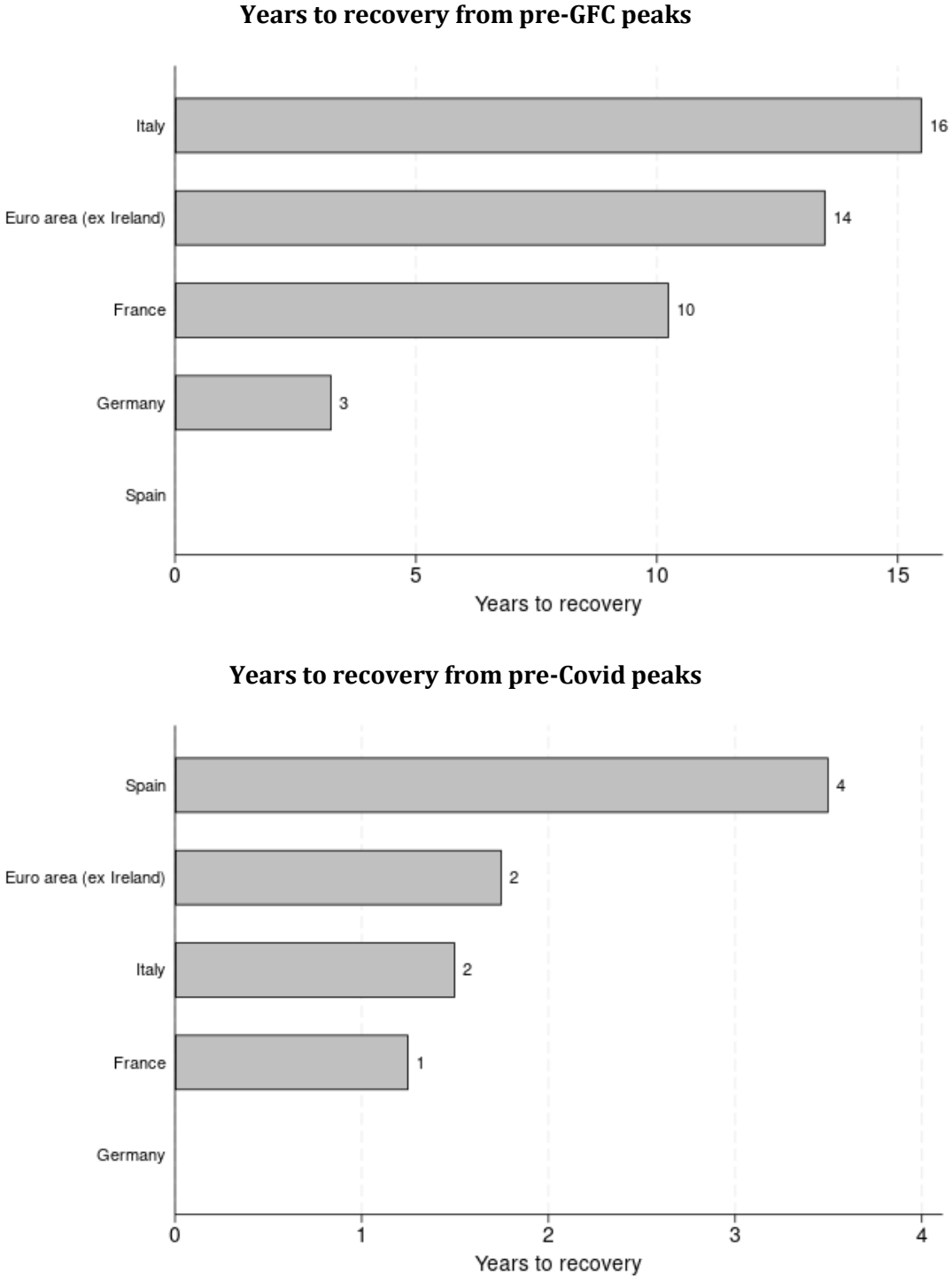
Notes: The figure reports real gross fixed capital formation at constant prices (chain-linked volumes) sourced from Eurostat national accounts. Panel (a) shows the euro-area aggregate, including and excluding Ireland and the Netherlands to account for multinational-related distortions in intellectual property products. Panels (b)-(e) report national series for Italy, Germany, France, and Spain. Vertical dashed lines identify major macroeconomic phases, identified with reference to euro-area investment dynamics: pre-Global Financial Crisis expansion, Global Financial and Sovereign Debt crises, post-crisis recovery, COVID-19 shock, and post-pandemic expansion. Data are seasonally and calendar adjusted.

Figure 2: Synchronisation of Investment Contractions: The Global Financial Crisis and the COVID-19 Shock



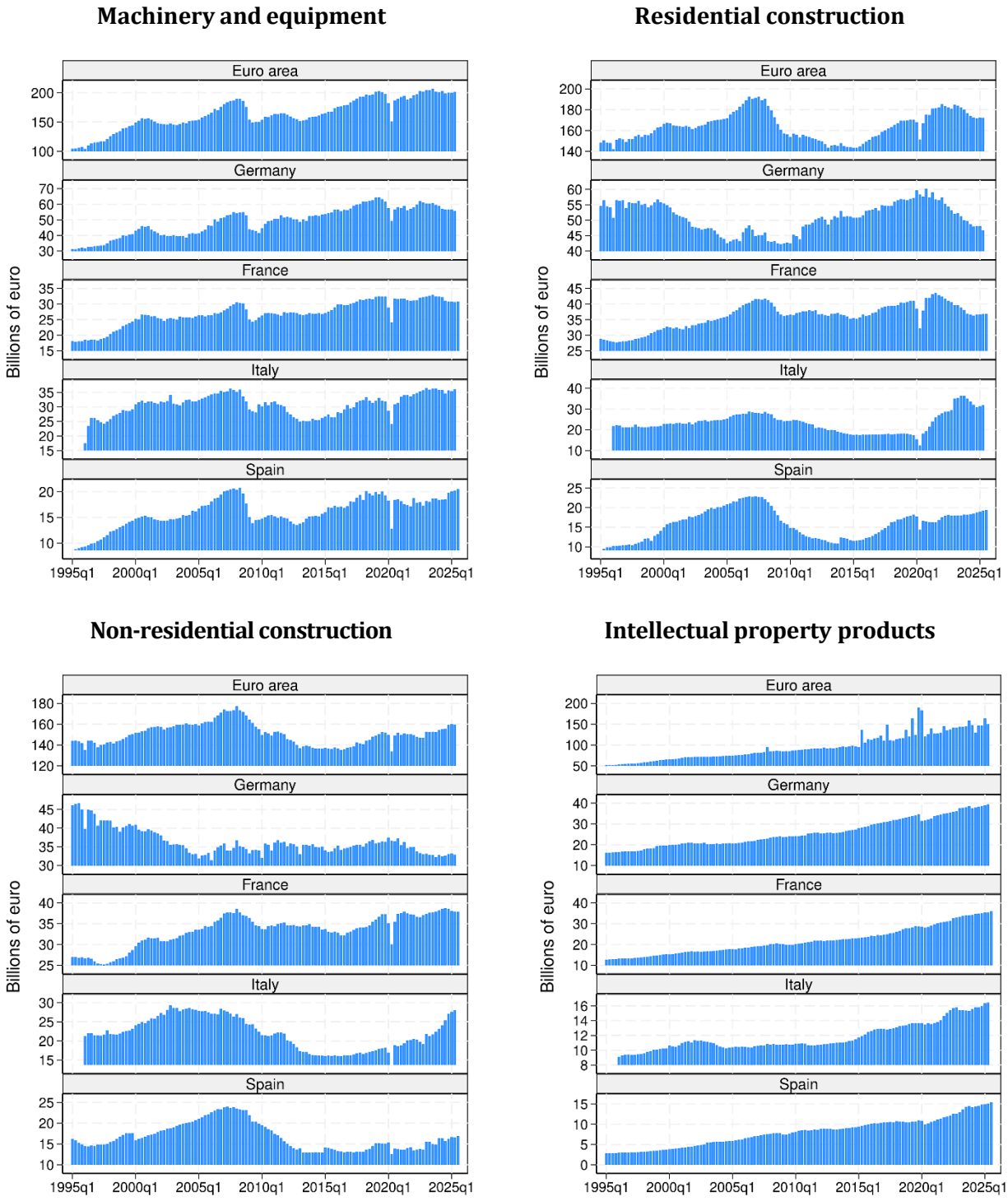
Notes: Real gross fixed capital formation, growth relative to the first observation in each period (2008Q1 and 2020Q1, respectively). The left panel refers to the global financial crisis (2008Q1–2009Q4), while the right panel shows the COVID-19 shock (2020Q1–2020Q3). The figure highlights the magnitude and synchronisation of investment contractions across countries.

Figure 3: Time to recovery of investment after the global financial crisis and the COVID-19 shock



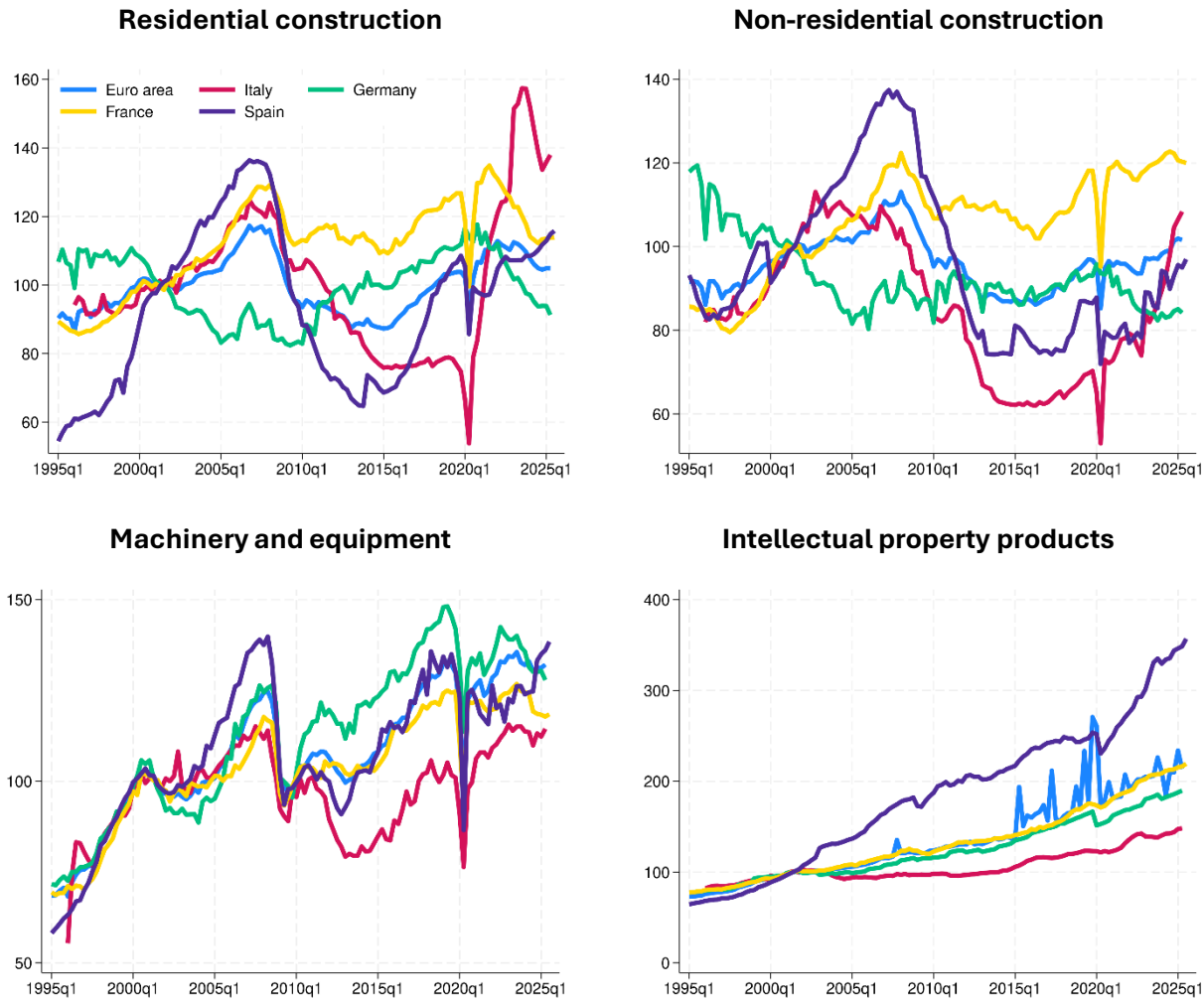
Notes: Bars report the number of years required for investment to return to its pre-shock peak. For the global financial crisis, the peak is defined as the highest level observed over 2007–2008; for the COVID-19 shock, it corresponds to the 2019 level. Recovery is identified as the first quarter in which investment reaches or exceeds its pre-shock level. Time is measured in quarters and expressed in years. Countries for which investment had not returned to its pre-shock peak by end-2025 are not shown (Spain in the upper panel; Germany in the lower panel).

Figure 4: Real Gross Fixed Capital Formation by Asset Type in the Euro Area and Major Member States



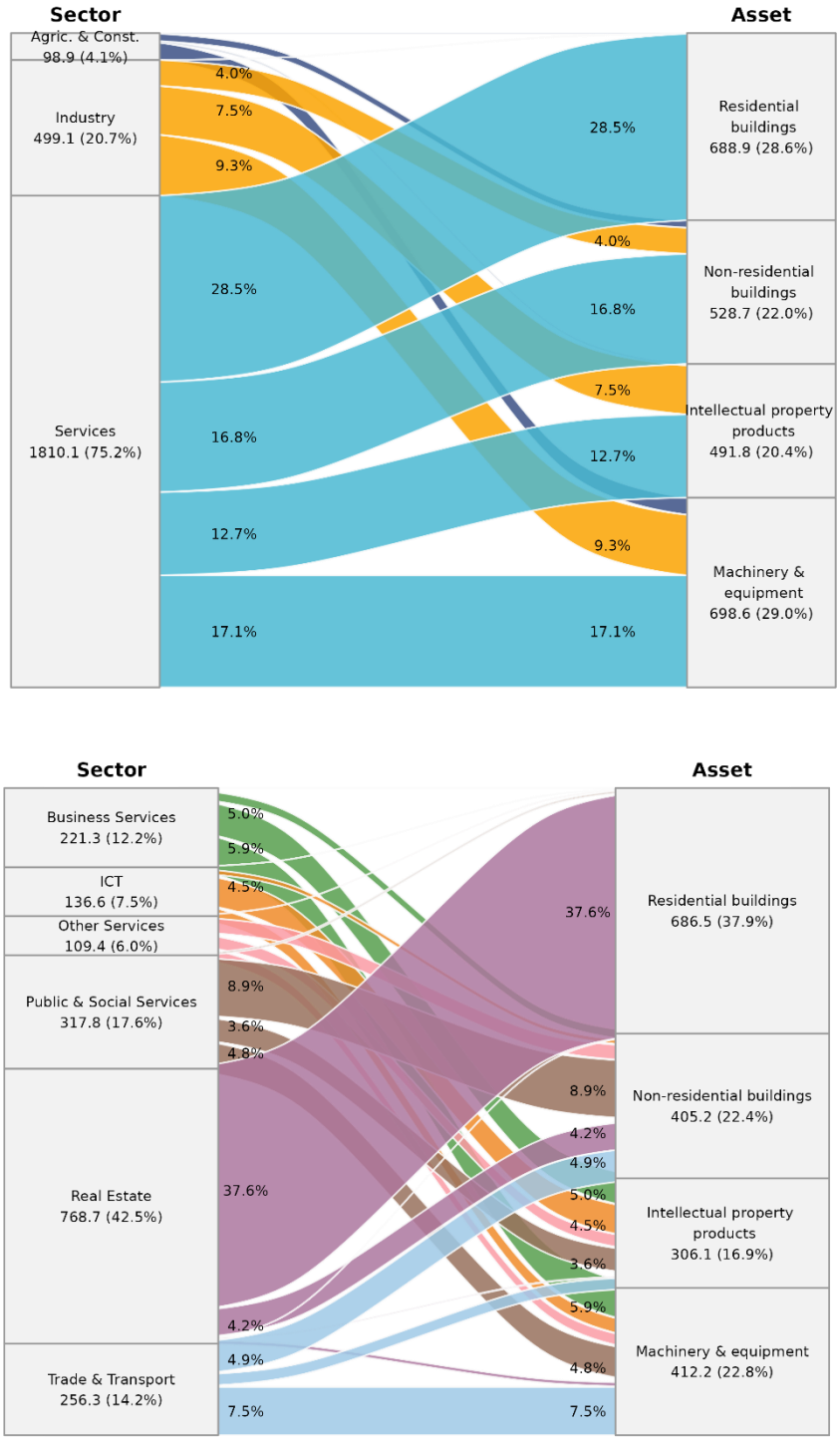
Notes: The figure reports real gross fixed capital formation at constant prices (chain-linked volumes), disaggregated by asset category: machinery and equipment, residential construction, non-residential construction, and intellectual property products. For each asset class, the euro-area aggregate and national series for France, Germany, Italy, and Spain are displayed. Data are quarterly, seasonally and calendar adjusted, and based on Eurostat national accounts.

Figure 5: Investment Dynamics by Asset Type: Comparison Across the Euro Area and Major Member States



Notes: The figure reports real gross fixed capital formation at constant prices (chain-linked volumes), expressed as index numbers (base period = 100) to facilitate cross-country comparison of growth dynamics. Panels (a)–(d) display indexed series for machinery and equipment, residential construction, non-residential construction, and intellectual property products, respectively. The euro-area aggregate and national series for France, Germany, Italy, and Spain are shown. Data are quarterly, seasonally and calendar adjusted, and sourced from Eurostat national accounts. The normalization highlights differences in cyclical volatility, recovery speed, and long-run growth patterns across asset classes and countries.

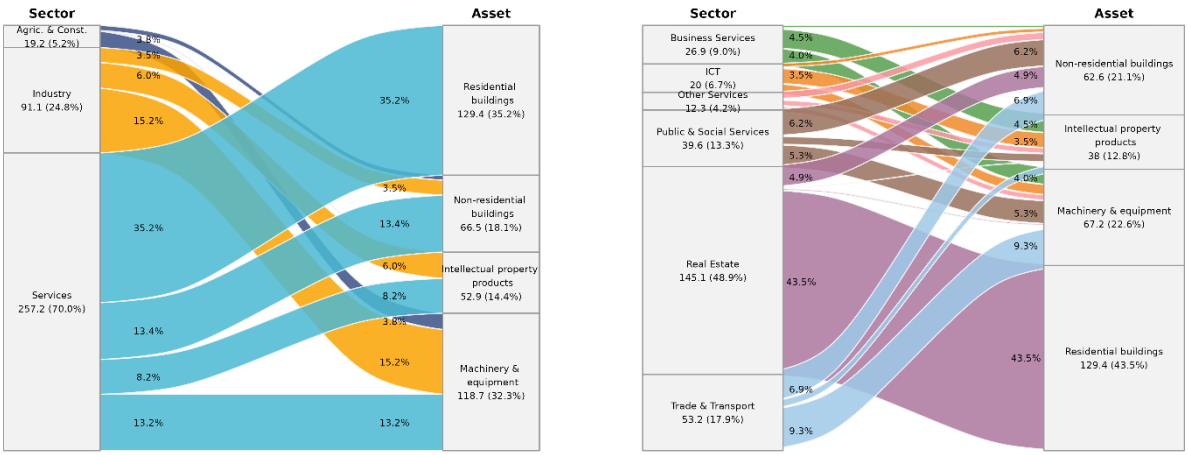
Figure 6: Sector–Asset Composition of Real Gross Fixed Capital Formation in the Euro Area



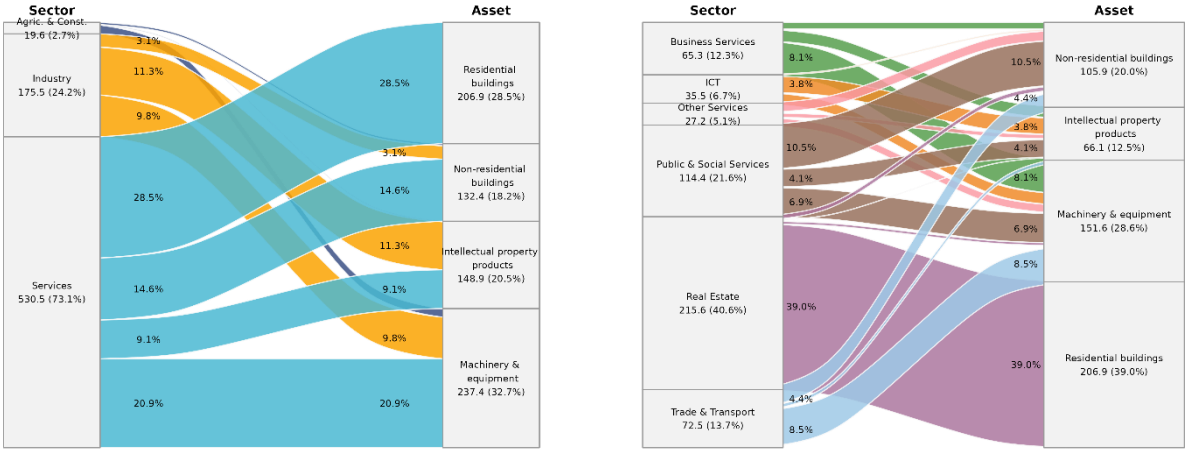
Notes: The figure reports the sectoral composition of real gross fixed capital formation at constant prices (chain-linked volumes), averaged over the period 2022–2024. Sankey diagrams illustrate the allocation of investment from broad sectors (ESA 2010, NACE A10 aggregation: agriculture and construction, industry, and services) to asset categories (residential buildings, non-residential buildings, machinery and equipment, and intellectual property products). Shares are expressed as percentages of total investment and are computed as simple averages over 2022–2024. The euro-area aggregate is constructed by summing national data for Germany, Spain, France, Italy, the Netherlands, Portugal, Belgium, Austria, Luxembourg, and Finland. Source: Eurostat national accounts.

Figure 7: Sector–Asset Composition of Real Gross Fixed Capital Formation in Euro Area Main Countries

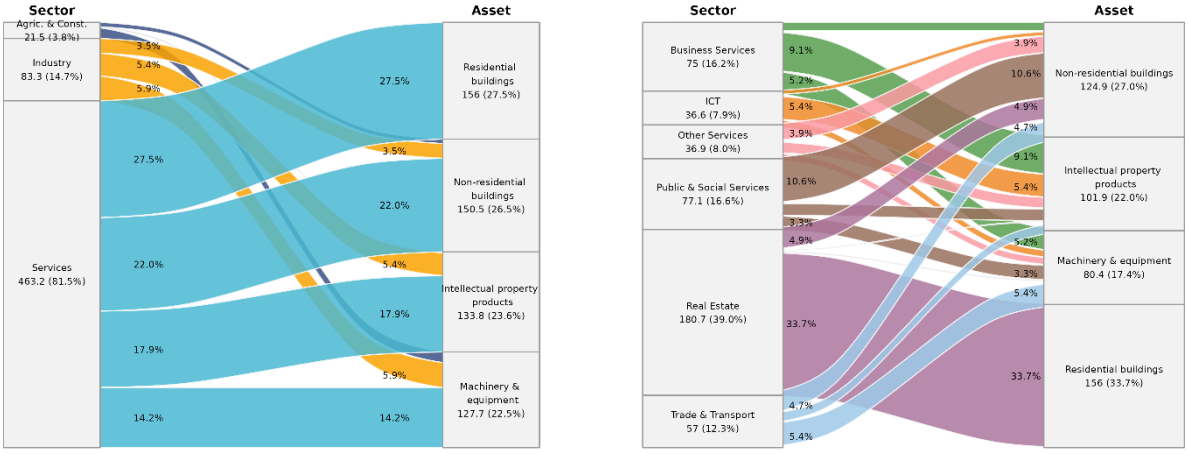
Italy



Germany



France



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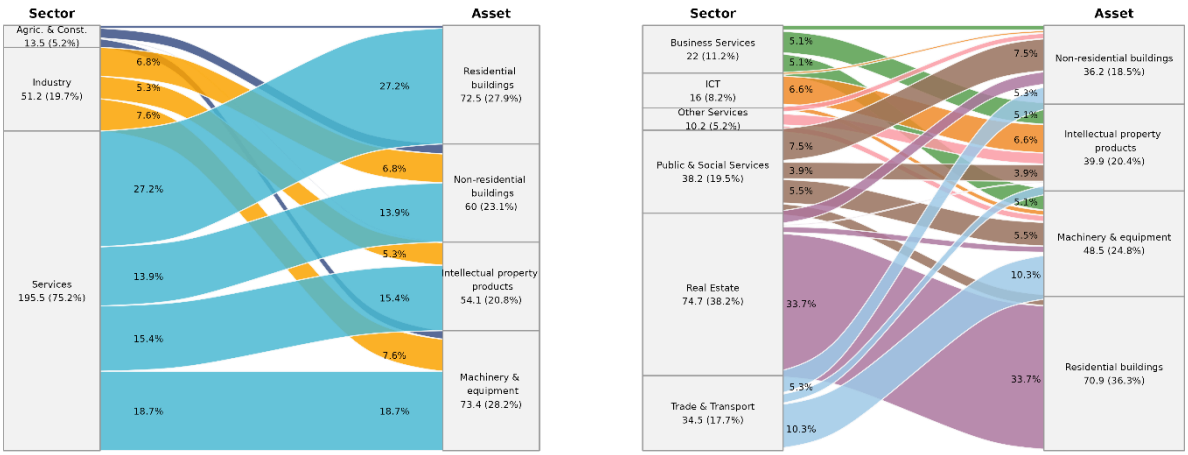
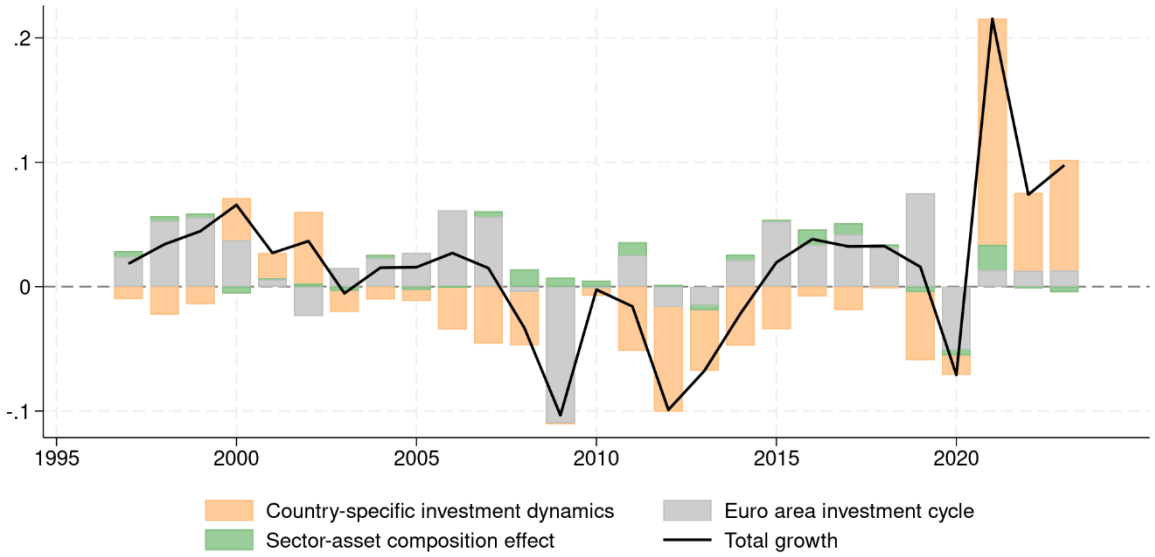
Spain



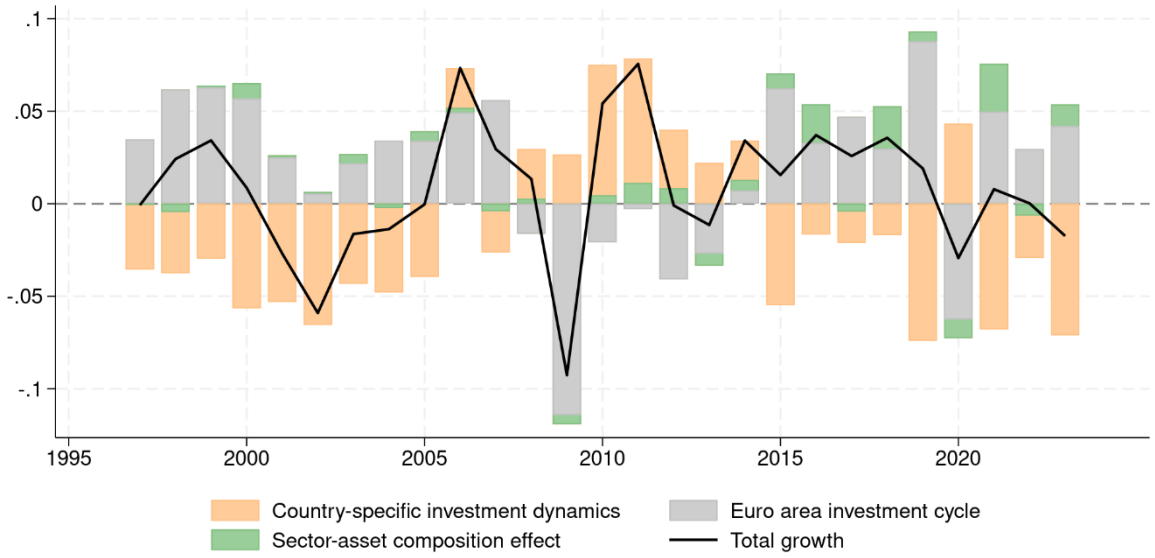
Notes: The figure reports the sectoral composition of real gross fixed capital formation at constant prices (chain-linked volumes), averaged over the period 2022–2024. Sankey diagrams illustrate the allocation of investment from broad sectors (ESA 2010, NACE A10 aggregation: agriculture and construction, industry, and services) to asset categories (residential buildings, non-residential buildings, machinery and equipment, and intellectual property products). Shares are expressed as percentages of total investment and are computed as simple averages over 2022–2024. The euro-area aggregate is constructed by summing national data for Germany, Spain, France, Italy, the Netherlands, Portugal, Belgium, Austria, Luxembourg, and Finland. Source: Eurostat national accounts.

Figure 8. Decomposition of Investment Growth: Euro Area Cycle, Composition, and Country-Specific Effects

Panel A. Italy



Panel B. Germany



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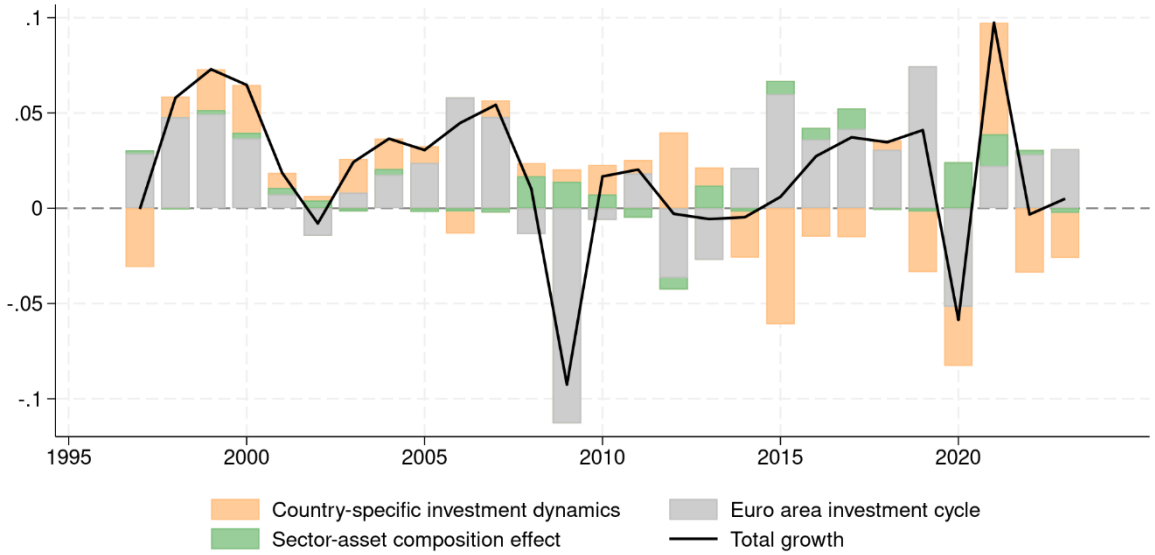
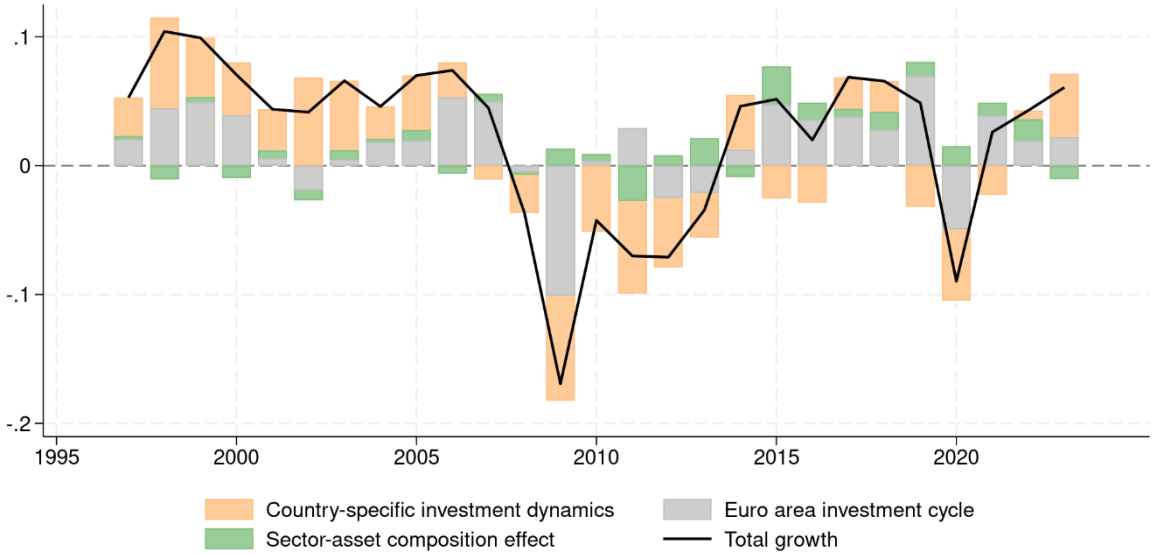
Panel C. France



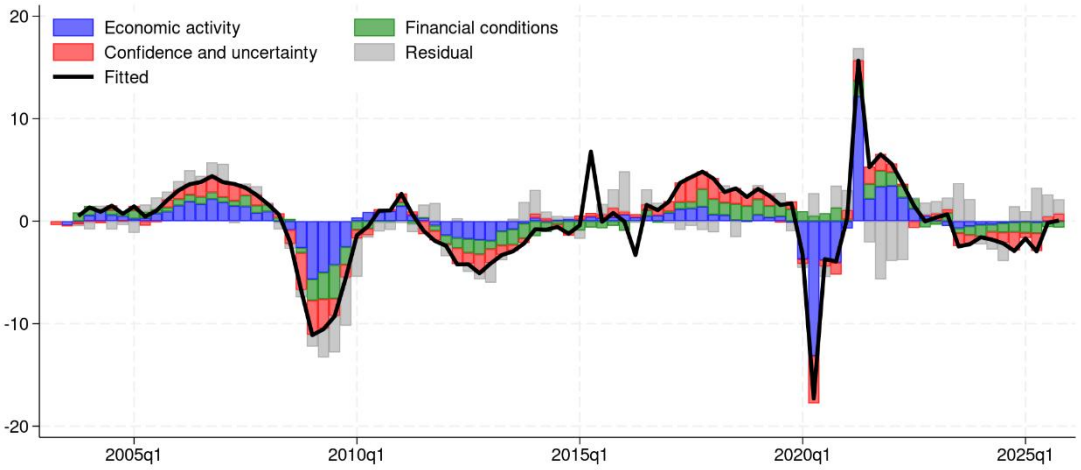
Panel D. Spain



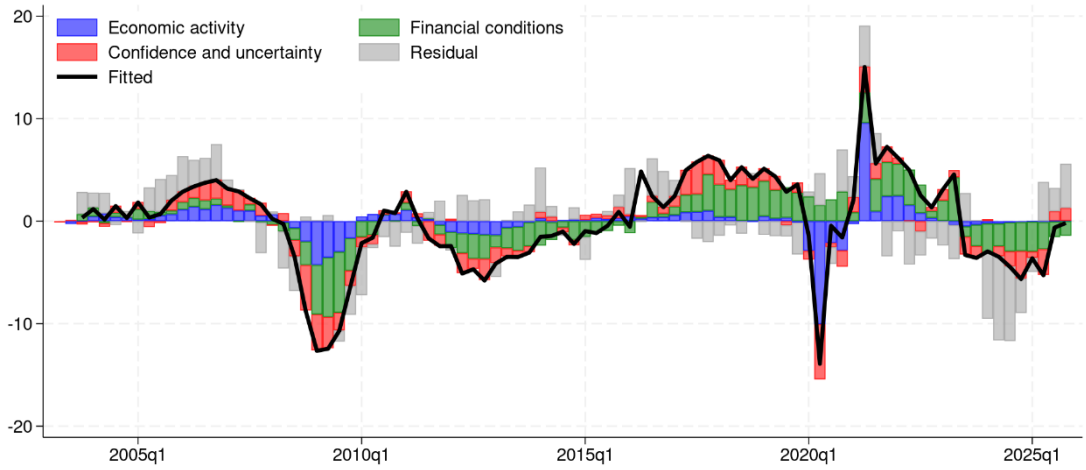
Notes: The figure reports a shift–share decomposition of real investment growth into three components: the euro-area investment cycle, the sector–asset composition effect, and the country-specific component. Growth rates are computed as year-on-year percentage changes in chain-linked investment series. The decomposition is based on sector–asset level data, where each cell combines industry (NACE Rev. 2) and asset categories (including construction in residential buildings, construction in non-residential buildings, machinery and equipment and intellectual property products). Weights correspond to lagged shares of each sector–asset cell in total investment. Euro-area aggregates are constructed excluding the country considered ("*leave-one-out approach*").

Figure 9: Drivers of investment, by asset, for the euro area

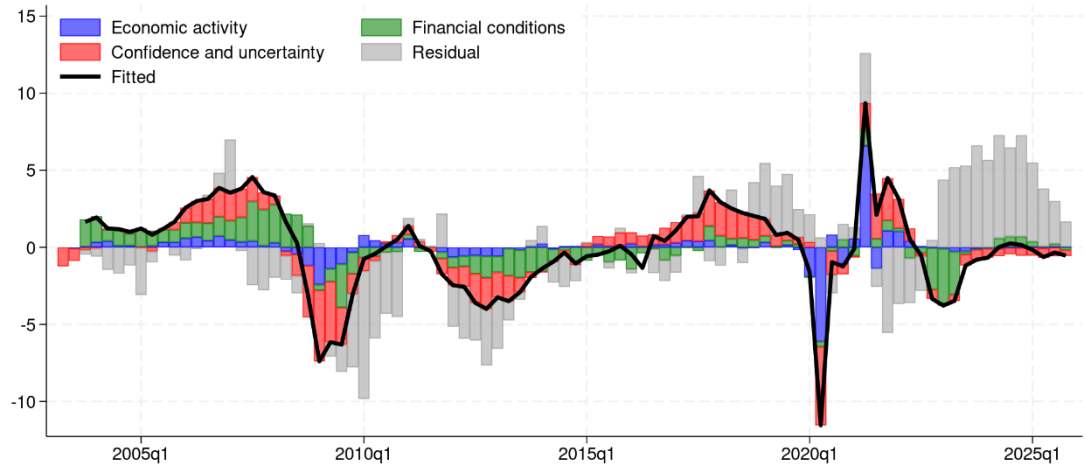
Panel (a): Total investment



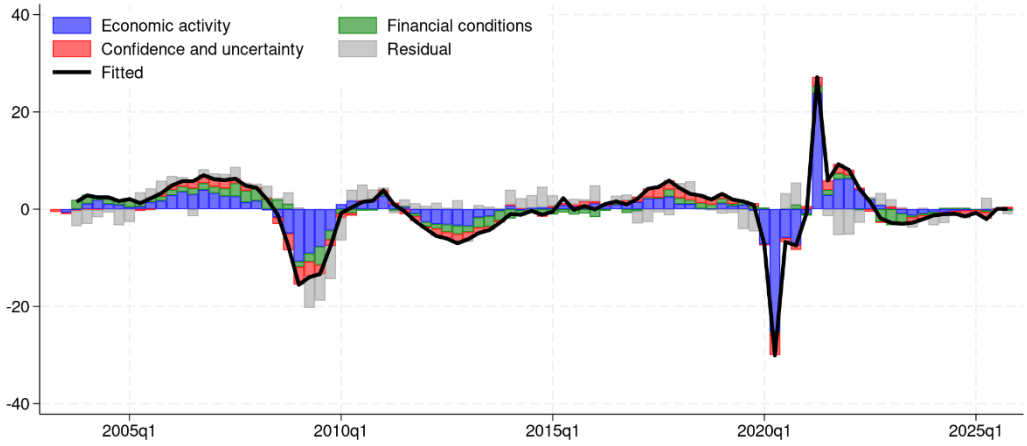
Panel (b): Residential investment



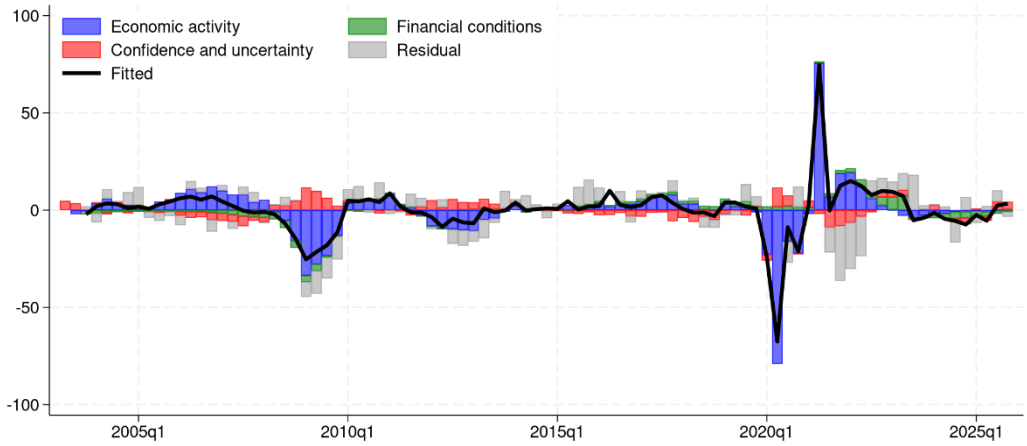
Panel (c): Non-residential investment



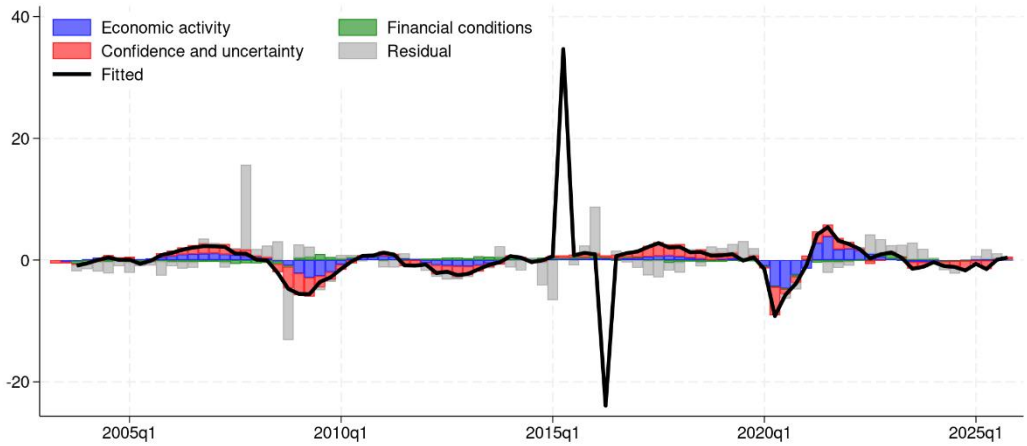
Panel (d): Machinery and equipment



Panel (e): Transport equipment



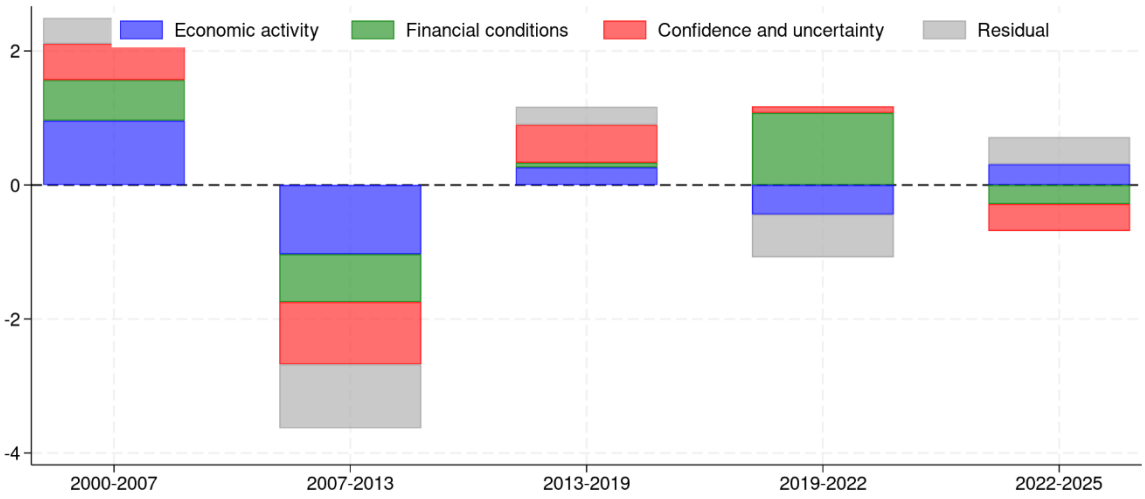
Panel (f): Intellectual property products



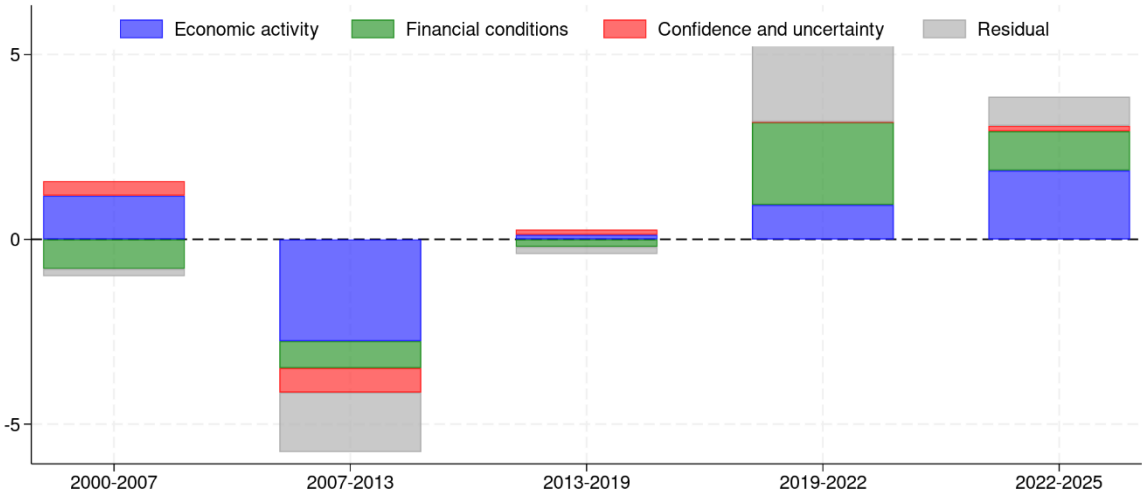
Notes: The stacked bar charts display historical decomposition analysis of deviations from mean values for various gross fixed capital formation (GFCF) components in the Euro Area excluding Ireland. Each component's deviation is decomposed into four structural drivers: economic activity (blue), financial conditions (green), confidence and uncertainty (red), and residual factors (gray). The y-axis measures deviations from the mean in standardized units.

Figure 10: Drivers of investment, by country and period

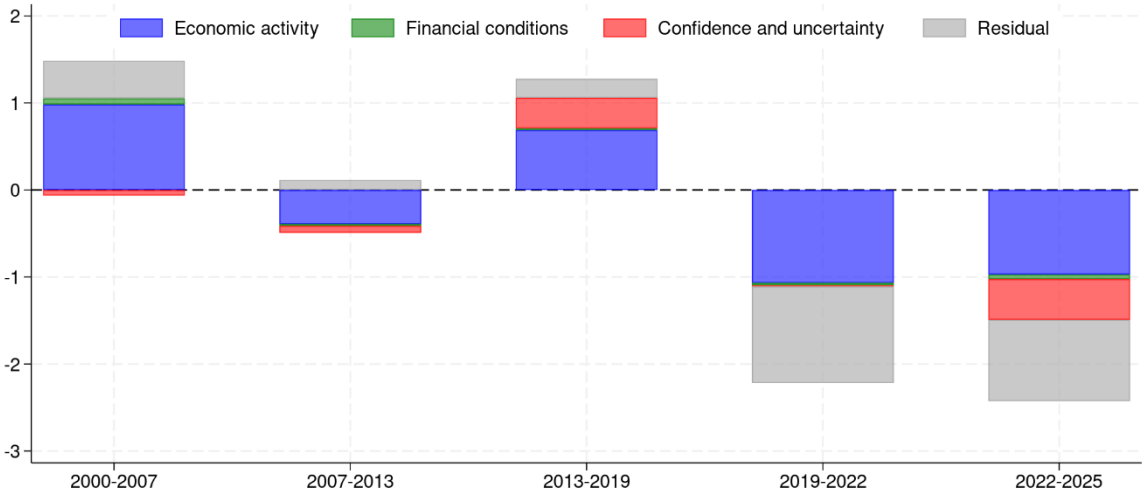
Panel (a): Euro area



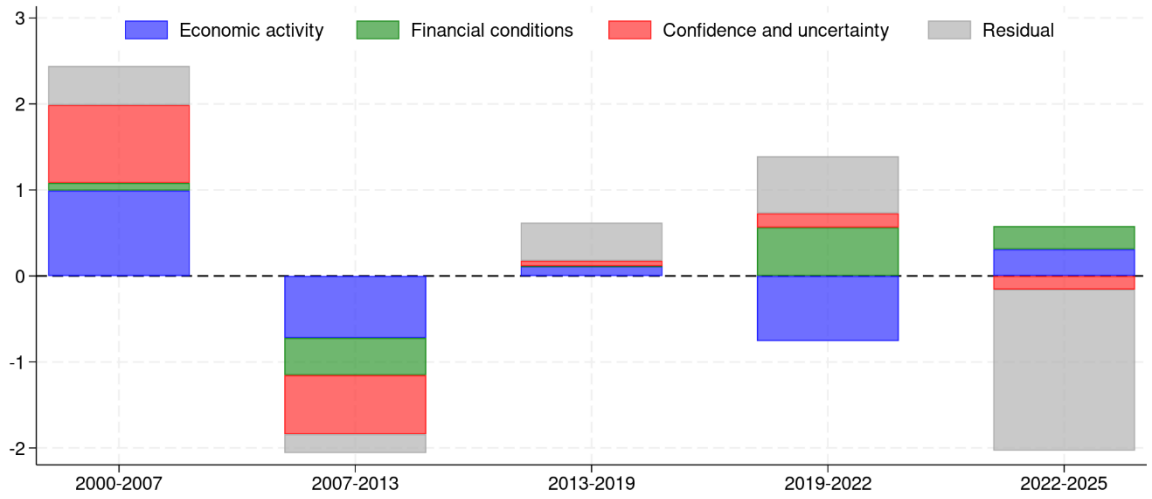
Panel (b): Italy



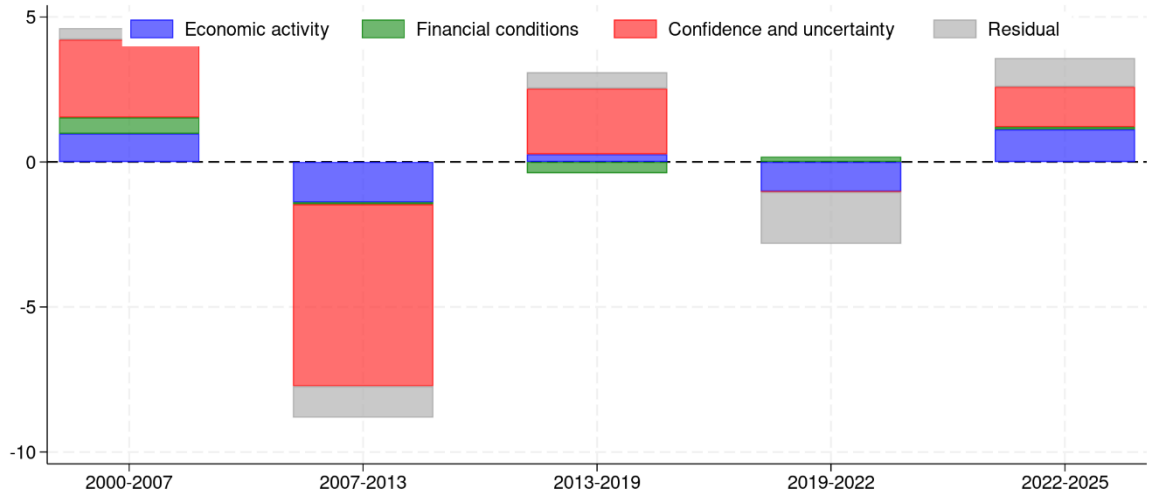
Panel (c): Germany



Panel (d): France



Panel (e): Spain



Notes: The stacked bar charts display historical decomposition analysis of deviations from mean values for total gross fixed capital formation (GFCF) components in the four largest EA countries and the EA net of Ireland across five distinct sub-periods: 2000q1-2007q4, 2007q4-2013q1, 2013q1-2019q4, 2019q4-2022q1, and 2022q1-2025q4. Each component's deviation is decomposed into four structural drivers: economic activity (blue), financial conditions (green), confidence and uncertainty (red), and residual factors (gray). The y-axis measures deviations from the mean in standardized units.

Table 1. Cyclical Properties of Investment by Asset Type in the Euro Area and Major Economies

	Volatility	Cyclicality	Asymmetry
Euro area			
Total	1.56	1.64***	0.63*
Residential construction	2.13	1.26***	**-0.73****
Non-residential construction	2.07	0.85***	0.14
Machinery and equipment	**3.46**	**2.24*****	0.58*
Intellectual property products	4.51	0.87***	0.00
Italy			
Total	3.65	1.64***	-0.42*
Residential construction	**6.07**	**2.45*****	**-2.81*****
Non-residential construction	4.86	1.46***	0.13
Machinery and equipment	5.09	1.83***	0.68*
Intellectual property products	1.18	0.27***	-0.15
Germany			
Total	2.10	1.32***	-0.49*
Residential construction	2.57	0.65***	**-1.76*****
Non-residential construction	3.18	0.51***	-1.25***
Machinery and equipment	**3.66**	**2.70*****	0.72*
Intellectual property products	1.48	0.61***	0.16
France			
Total	2.26	1.27***	-0.49***
Residential construction	2.85	1.50***	**-0.78*****
Non-residential construction	2.57	1.24***	-0.71***
Machinery and equipment	**3.84**	**1.81*****	0.01
Intellectual property products	0.96	0.38***	-0.17
Spain			
Total	3.25	1.36***	-0.44
Residential construction	3.87	1.54***	**-1.05****
Non-residential construction	3.63	1.14***	-0.44
Machinery and equipment	**5.73**	**1.78*****	0.41
Intellectual property products	1.85	0.67***	-0.09

Notes: Volatility is measured as the standard deviation of quarterly log growth rates of real investment. Cyclicality corresponds to the elasticity of investment growth to real GDP growth, estimated using year-on-year log differences. Asymmetry captures the differential response of investment to GDP during downturns and is measured as the coefficient on the interaction between GDP growth and a dummy variable equal to one when GDP growth is negative. All variables are expressed in real terms. *, ** and *** denote statistical significance at the 10, 5 and 1 per cent levels, respectively. In bold, maxima by columns.

TABLE 2: estimation results

Table 2a: Euro area net of Ireland

	(1) TOT	(2) COST	(3) RESID	(4) NON-RESID	(5) MACH	(6) MAE	(7) TRANSP	(8) IPP
% y-o-y GDP	0.868***	0.575***	0.679***	0.454**	2.651***	1.690***	5.351***	0.222
	(0.102)	(0.187)	(0.210)	(0.180)	(0.685)	(0.465)	(1.555)	(0.243)
% y-o-y lag GDP	-0.078	-0.163	-0.116	-0.222*	-0.417*	-0.249	-0.948	0.219
	(0.096)	(0.107)	(0.138)	(0.116)	(0.249)	(0.178)	(0.765)	(0.133)
UCC	-0.247*	-0.308*	-1.014***	0.501	-0.103	0.357*	-1.512*	-0.058
	(0.147)	(0.164)	(0.276)	(0.312)	(0.312)	(0.202)	(0.832)	(0.303)
Financial obstacles	-1.006***	-1.390***	-1.663***	-1.052***	-0.919	-1.310**	0.115	0.337
	(0.318)	(0.296)	(0.417)	(0.347)	(0.602)	(0.525)	(1.250)	(0.561)
ESI	0.123***	0.141***	0.137**	0.149***	0.010	0.129	-0.330	0.127
	(0.040)	(0.049)	(0.061)	(0.055)	(0.108)	(0.079)	(0.247)	(0.097)
EPU_t – EPU_{t-1}	-0.012*	-0.010	-0.019**	0.001	-0.017*	-0.008	-0.040	-0.008
	(0.006)	(0.007)	(0.009)	(0.010)	(0.010)	(0.007)	(0.025)	(0.007)
Dum 15q2	6.645***	-0.641*	-0.679	-0.720	2.340***	1.738***	3.827**	34.051***
	(0.412)	(0.365)	(0.539)	(0.541)	(0.725)	(0.564)	(1.524)	(0.605)
Dum 16q2	-3.878***	1.383***	4.288***	-1.714***	3.057***	0.431	9.936***	-24.564***
	(0.382)	(0.347)	(0.458)	(0.507)	(0.720)	(0.489)	(1.653)	(0.434)
Obs.	89.000	89.000	89.000	89.000	85.000	85.000	85.000	85.000
R2	0.860	0.788	0.754	0.498	0.731	0.789	0.468	0.800

Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Notes*: dummies in 2015 and 2016 are meant to control Netherlands IPP data outliers. Estimation Period is 2003Q2-2025Q4. TOT: total GFCF; COST: total construction; RESID: residential construction (dwellings); NON-RESID: non-residential construction (other buildings & structures); MACH: total machinery & equipment; MAE: machinery excluding transport; TRANSP: transport equipment; IPP: Intellectual property products.

Table 2b: Italy

	(1) TOT	(2) COST	(3) RESID	(4) NON-RESID	(5) MACH	(6) MAE	(7) TRANSP	(8) IPP
% y-o-y GDP	1.943***	2.960***	3.983***	2.063***	1.812***	1.609***	3.144***	0.200
	(0.197)	(0.433)	(0.775)	(0.260)	(0.214)	(0.164)	(0.842)	(0.166)
% y-o-y lag GDP	-0.511**	-0.716*	-0.884	-0.550**	-0.706***	-0.648***	-1.204**	0.204
	(0.210)	(0.422)	(0.773)	(0.245)	(0.161)	(0.151)	(0.582)	(0.136)
UCC	-0.993***	-1.444**	-5.134***	3.914***	-0.510*	-0.853***	1.020	-0.215
	(0.286)	(0.564)	(1.394)	(1.304)	(0.271)	(0.300)	(1.217)	(0.271)
Financial obstacles	-0.875**	-2.099***	-0.574	-4.653***	0.048	0.318	-0.927	0.229
	(0.342)	(0.533)	(1.252)	(1.168)	(0.383)	(0.324)	(1.536)	(0.334)
ESI	0.087*	-0.140	-0.275	-0.020	0.342***	0.330***	0.425	-0.023
	(0.044)	(0.086)	(0.178)	(0.122)	(0.068)	(0.054)	(0.280)	(0.066)
EPU_t – EPU_{t-1}	-0.003	-0.008	-0.049	0.027	-0.004	0.014	-0.092*	0.003
	(0.012)	(0.021)	(0.044)	(0.032)	(0.019)	(0.018)	(0.053)	(0.012)
Dum 15q2	2.938***	0.991	0.887	0.399	5.306***	2.773***	20.462***	3.614***
	(0.501)	(0.831)	(1.567)	(1.645)	(0.784)	(0.652)	(3.162)	(0.723)
Dum 16q2	1.258	2.762**	0.327	6.934***	-2.082	-4.667***	10.151**	5.301***
	(0.802)	(1.231)	(2.673)	(2.532)	(1.265)	(1.076)	(4.524)	(1.010)
Obs	88.000	88.000	88.000	88.000	88.000	88.000	88.000	88.000
R2	0.828	0.734	0.599	0.443	0.763	0.741	0.496	0.171

Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Notes*: dummies in 2015 and 2016 are meant to control Netherlands IPP data outliers. Estimation Period is 2003Q2-2025Q4. TOT: total GFCF; COST: total construction; RESID: residential construction (dwellings); NON-RESID: non-residential construction (other buildings & structures); MACH: total machinery & equipment; MAE: machinery excluding transport; TRANSP: transport equipment; IPP: Intellectual property products.

Table 2c: Germany

	(1) TOT	(2) COST	(3) RESID	(4) NON-RESID	(5) MACH	(6) MAE	(7) TRANSP	(8) IPP
% y-o-y GDP	0.970***	0.147	0.109	0.218	2.452***	0.967***	6.805***	0.467***
	(0.261)	(0.301)	(0.319)	(0.303)	(0.398)	(0.246)	(1.036)	(0.155)
% y-o-y lag GDP	0.265	-0.016	-0.005	-0.025	0.560*	0.816**	-0.318	0.350**
	(0.210)	(0.270)	(0.283)	(0.273)	(0.305)	(0.325)	(0.697)	(0.174)
UCC	0.047	0.192	0.019	0.429	-0.185	1.290***	-4.183***	-0.270
	(0.156)	(0.342)	(0.441)	(0.260)	(0.275)	(0.272)	(0.794)	(0.173)
Financial obstacles	-0.105	0.864*	1.217**	0.427	-0.900	-2.013***	2.151	-0.176
	(0.313)	(0.490)	(0.548)	(0.489)	(0.581)	(0.638)	(1.519)	(0.432)
ESI	0.050	0.259***	0.321***	0.164*	-0.183	0.150	-1.119***	-0.071
	(0.063)	(0.093)	(0.107)	(0.085)	(0.111)	(0.106)	(0.294)	(0.063)
$EPU_t - EPU_{t-1}$	-0.005*	0.000	-0.000	0.001	-0.012**	-0.008	-0.020	-0.003
	(0.003)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.014)	(0.004)
Dum 15q2	-1.281***	-2.282***	-1.332*	-3.654***	-1.197*	0.845	-6.878***	2.096***
	(0.409)	(0.612)	(0.673)	(0.622)	(0.638)	(0.768)	(1.761)	(0.552)
Dum 16q2	0.747*	2.913***	4.017***	1.216**	-2.635***	-5.288***	3.812**	2.128***
	(0.425)	(0.587)	(0.642)	(0.587)	(0.673)	(0.621)	(1.642)	(0.431)
Obs	89.000	89.000	89.000	89.000	89.000	89.000	89.000	89.000
R2	0.725	0.238	0.266	0.164	0.796	0.748	0.604	0.380

Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Notes*: dummies in 2015 and 2016 are meant to control Netherlands IPP data outliers. Estimation Period is 2003Q2-2025Q4. TOT: total GFCF; COST: total construction; RESID: residential construction (dwellings); NON-RESID: non-residential construction (other buildings & structures); MACH: total machinery & equipment; MAE: machinery excluding transport; TRANSP: transport equipment; IPP: Intellectual property products.

Table 2d: France

	(1) TOT	(2) COST	(3) RESID	(4) NON-RESID	(5) MACH	(6) MAE	(7) TRANSP	(8) IPP
% y-o-y GDP	1.061***	1.211***	1.287***	1.127***	1.615***	0.982***	3.140***	0.189***
	(0.190)	(0.323)	(0.419)	(0.226)	(0.167)	(0.128)	(0.436)	(0.043)
% y-o-y lag GDP	-0.154	-0.139	-0.095	-0.185	-0.544***	-0.250**	-1.198***	0.222***
	(0.121)	(0.204)	(0.282)	(0.139)	(0.157)	(0.111)	(0.289)	(0.056)
UCC	0.004	0.235	-0.004	0.471**	-0.252	-0.318	-0.125	-0.339*
	(0.178)	(0.242)	(0.396)	(0.202)	(0.437)	(0.381)	(0.711)	(0.191)
Financial obstacles	-0.303	-0.298	-0.148	-0.457**	-0.290	-0.310	-0.334	-0.296**
	(0.222)	(0.240)	(0.323)	(0.215)	(0.454)	(0.367)	(0.754)	(0.142)
ESI	0.123***	0.130**	0.174**	0.084*	0.151**	0.137*	0.129	0.030
	(0.039)	(0.058)	(0.074)	(0.048)	(0.073)	(0.071)	(0.141)	(0.025)
$EPU_t - EPU_{t-1}$	-0.006	-0.008	-0.007	-0.008*	-0.008	-0.003	-0.018	0.000
	(0.004)	(0.005)	(0.007)	(0.004)	(0.009)	(0.009)	(0.014)	(0.004)
Dum 15q2	-0.985***	-2.827***	-2.478***	-3.194***	2.677***	-0.054	8.266***	-0.037
	(0.323)	(0.361)	(0.494)	(0.375)	(0.779)	(0.725)	(1.318)	(0.283)
Dum 16q2	2.428***	0.674	3.668***	-2.505***	8.834***	8.381***	9.609***	-0.027
	(0.335)	(0.418)	(0.552)	(0.407)	(0.726)	(0.669)	(1.144)	(0.272)
Obs	88.000	88.000	88.000	88.000	88.000	88.000	88.000	88.000
R2	0.797	0.735	0.658	0.698	0.641	0.523	0.614	0.554

Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Notes*: dummies in 2015 and 2016 are meant to control Netherlands IPP data outliers. Estimation Period is 2003Q2-2025Q4. TOT: total GFCF; COST: total construction; RESID: residential construction (dwellings); NON-RESID: non-residential construction (other buildings & structures); MACH: total machinery & equipment; MAE: machinery excluding transport; TRANSP: transport equipment; IPP: Intellectual property products.

Table 2e: Spain

	(1) TOT	(2) COST	(3) RESID	(4) NON-RESID	(5) MACH	(6) MAE	(7) TRANSP	(8) IPP
% y-o-y GDP	0.626***	0.305**	0.315*	0.281**	1.454***	0.766***	3.399***	0.589***
	(0.107)	(0.129)	(0.176)	(0.129)	(0.162)	(0.239)	(0.293)	(0.069)
% y-o-y lag GDP	-0.123	0.043	-0.051	0.158	-0.713***	-0.654***	-1.164***	0.309***
	(0.138)	(0.204)	(0.236)	(0.200)	(0.148)	(0.146)	(0.441)	(0.076)
UCC	-0.099	-0.581	-0.889	-0.167	0.861	0.918	-0.285	-0.488
	(0.321)	(0.416)	(0.658)	(0.972)	(0.627)	(0.617)	(1.239)	(0.376)
Financial obstacles	-0.117*	-0.245***	0.118	-0.566***	0.003	-0.281***	0.609**	-0.151*
	(0.061)	(0.084)	(0.162)	(0.128)	(0.129)	(0.105)	(0.300)	(0.087)
ESI	0.464***	0.573***	0.697***	0.438***	0.458***	0.500***	0.199	-0.105*
	(0.044)	(0.070)	(0.096)	(0.105)	(0.102)	(0.088)	(0.217)	(0.055)
$EPU_t - EPU_{t-1}$	0.007	-0.002	0.006	-0.012	0.034	0.002	0.111*	0.004
	(0.015)	(0.021)	(0.032)	(0.030)	(0.029)	(0.025)	(0.065)	(0.018)
Dum 15q2	-0.461	-2.268**	-13.334***	7.085***	1.359	-0.234	4.278	1.368*
	(0.799)	(0.988)	(2.372)	(1.652)	(1.576)	(1.254)	(3.499)	(0.752)
Dum 16q2	-3.000***	-3.970***	1.915	-8.549***	-4.337***	2.165***	-13.577***	1.332***
	(0.565)	(0.746)	(1.360)	(0.998)	(0.910)	(0.752)	(1.978)	(0.500)
Obs	89.000	89.000	89.000	89.000	89.000	89.000	89.000	89.000
R2	0.838	0.801	0.716	0.627	0.651	0.613	0.570	0.482

Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Notes*: dummies in 2015 and 2016 are meant to control Netherlands IPP data outliers. Estimation Period is 2003Q2-2025Q4. TOT: total GFCF; COST: total construction; RESID: residential construction (dwellings); NON-RESID: non-residential construction (other buildings & structures); MACH: total machinery & equipment; MAE: machinery excluding transport; TRANSP: transport equipment; IPP: Intellectual property products.

Table A1 : Data Sources and Variables for the estimations in Section 5

A. Eurostat National Accounts (NAMQ_10_GDP, NAMQ_10_AN6, NAMQ_10_PE)

- Real GDP (B1GQ): Chain-linked volumes, 2020 reference year, seasonally adjusted
- Gross Fixed Capital Formation by Asset Type (6 components and total):
  - N11G: Total GFCF
  - N11KG: Total construction (COST)
  - N111G: Dwellings (RESID - residential)
  - N112G: Other buildings and structures (NON-RESID - non-residential)
  - N11MG: Machinery and equipment total (MACH)
  - N1131G: Transport equipment (TRANSP)
  - N11OG: Other machinery (MAE)
  - N117G: Intellectual property products (IPP)
- Investment Deflators (PD05_EUR): Price deflators for all asset categories

B. European Commission Business and Consumer Surveys

- Industry Confidence Indicators. “Fin”: Financial obstacles to activity, quarterly
- Economic Sentiment Indicator (ESI): Composite confidence indicator, monthly aggregated to quarterly

C. Nominal interest rates

- MIR (Monetary Financial Institutions Interest Rates): Interest rates on new loans to non-financial corporations, annualized, monthly aggregated to quarterly (MIR/M..B.A2A.A.R.A.2240.EUR.N)

D. Economic Policy Uncertainty (EPU)

- Country-specific EPU indices from Baker, Bloom, and Davis
- Quarterly data for DE, FR, IT, ES
- GDP-weighted aggregate constructed for EA

E. Consensus Economics Forecasts

- Mean CPI forecasts for year t+1:

Table A2. Investment dynamics: main macroeconomic phases (1995–2025)

Period	Label	Main features
1995–2008	early euro area expansion	This period was characterised by favourable financial conditions, declining interest rates, and buoyant domestic demand, which supported broadly synchronised investment growth across member states. At the same time, the expansion coincided with the gradual build-up of macroeconomic imbalances, including widening current account positions, divergent competitiveness trends, and credit-driven demand booms in several economies (Chen et al., 2013; Lane, 2013; Pierluigi and Sondermann, 2018).
2008–2013	global financial and sovereign debt crises	This phase encompasses both the global financial crisis and the subsequent sovereign debt crisis. Investment contracted sharply in 2009 across all countries, reflecting the global nature of the financial shock. A second downturn followed in financially vulnerable economies during the sovereign debt crisis, driven by rising risk premia, fiscal consolidation, and tightening credit conditions. This episode marked a reversal of pre-crisis credit expansion and led to pronounced cross-country divergence, in line with the literature on financial-cycle downturns and debt overhang effects (Jordà et al., 2013; Kalemli-Ozcan et al., 2018).
2014–2019	post-crisis recovery	Investment gradually recovered at the euro-area level, supported by accommodative monetary policy and improving financial conditions. However, the recovery remained moderate and uneven across countries. In several economies – most notably Italy – investment levels failed to return to their pre-crisis peaks. This pattern is consistent with evidence that financial crises can generate persistent losses in output and capital accumulation (Cerra and Saxena, 2008; Romer and Romer, 2017). In some cases, subdued investment may also reflect an adjustment from previously elevated capital-output ratios, rather than purely cyclical weakness.
2020–2021	COVID-19 period	The pandemic triggered an unprecedented but short-lived contraction associated with containment measures and supply disruptions. In contrast to the post-2009 episode, the subsequent rebound was rapid and broad-based, supported by extraordinary fiscal expansion, highly accommodative monetary policy, and the introduction of EU-level recovery instruments. By 2022, aggregate euro-area investment had exceeded pre-pandemic levels. This strong recovery highlights the role of coordinated policy responses in mitigating the persistence of crisis-induced investment losses (Demmou et al., 2021; Haroutunian et al., 2021).
2022–2025	tightening and resilience phase	The recent period has been characterised by a surge in inflation and a sharp tightening of monetary policy. Rising financing costs, elevated uncertainty, and geopolitical tensions have moderated investment growth. While no generalised contraction has materialised, cross-country dispersion has increased, pointing to renewed heterogeneity in the sensitivity of investment to financial conditions.

Appendix B. Medium-Term Trends in Investment

To complement the analysis of cyclical dynamics, this appendix provides a simple characterisation of medium-term trends in investment growth in the euro area and its largest economies. Trend growth is estimated using rolling-window regressions of log investment on a linear time trend over five-year windows.

The evidence reported in Figure B1 highlights three main patterns.

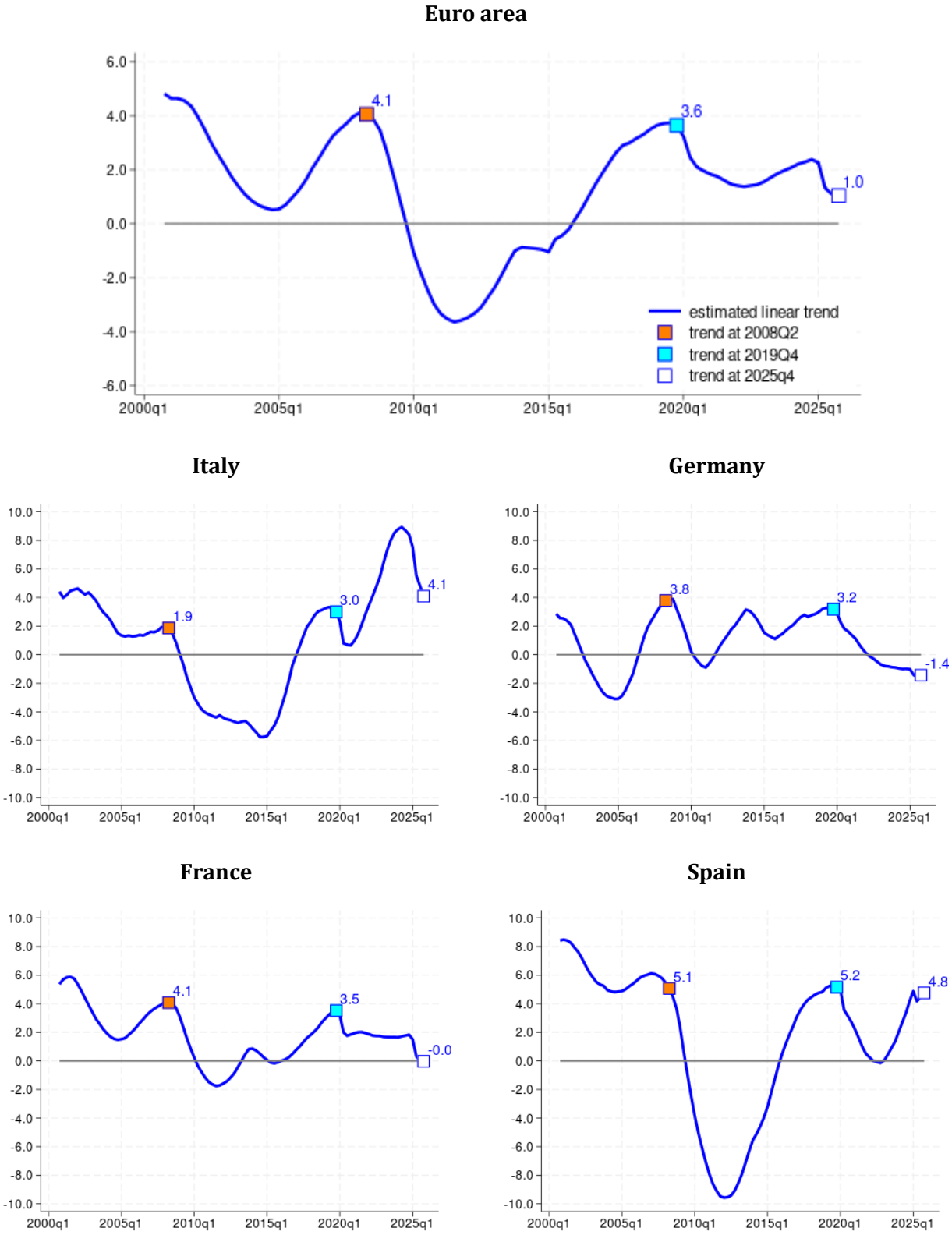
First, trend growth exhibits pronounced sensitivity to major macroeconomic shocks. Prior to the global financial crisis, trend investment growth is positive across all economies, averaging around 4.1% in the euro area, with somewhat lower but still solid rates in the main countries (e.g. about 1.9% in Italy and 4.3% in Germany). The crisis is associated with a large and persistent deterioration, with trend growth turning markedly negative – especially in Italy and Spain – indicating a substantial and persistent disruption of capital accumulation.

Second, the subsequent recovery is markedly heterogeneous. By the eve of the pandemic, trend growth has partially recovered but remains uneven across countries. The euro area reaches about 3.6%, while Germany records around 2.2% and France about 3.5%. By contrast, Italy shows a more modest improvement, with trend growth around 2.7%, reflecting a slower and more fragile recovery.

Third, the COVID-19 shock induces a sharp but short-lived disruption, followed by a rapid rebound. However, more recent observations indicate a renewed moderation in trend growth. By the end of the sample (2025Q1), trend growth declines to around 1.0% in the euro area, with particularly weak dynamics in Germany (about −1.4%) and France (close to zero), while Italy and Spain display comparatively stronger momentum, with trend growth around 4.1% and 4.8%, respectively. This recent slowdown is consistent with the tightening of financial conditions, elevated uncertainty, and adverse energy shocks characterising the post-2022 period.

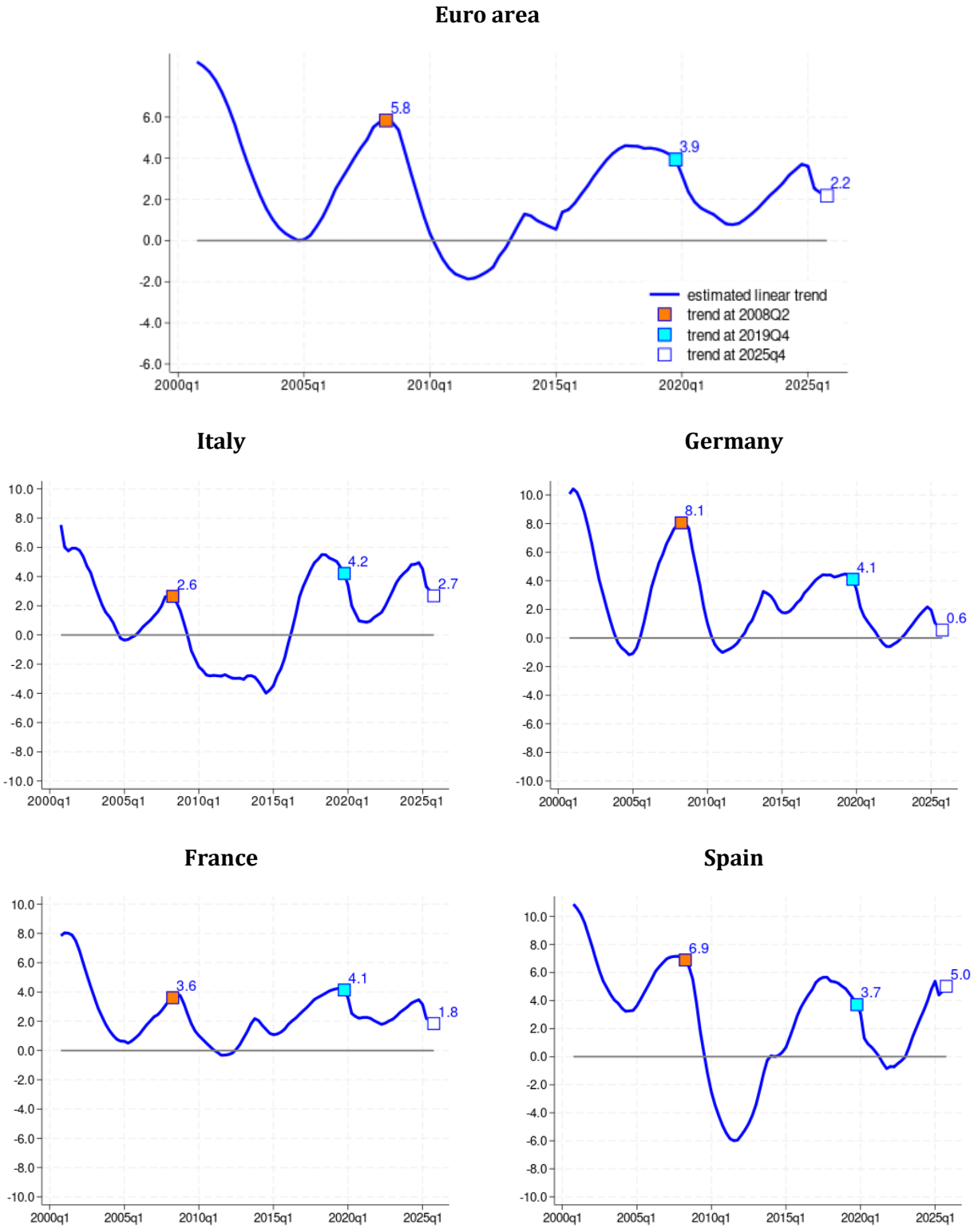
To assess the role of construction, Figure B2 replicates the analysis excluding this component. The main qualitative patterns are preserved, including the sharp deterioration in trend growth during the global financial crisis and the subsequent cross-country heterogeneity in the recovery. Differences arise, however, in the most recent period – particularly for Germany and Italy. Excluding construction attenuates the recent slowdown in Germany and somewhat alters the strength of the rebound in Italy, suggesting that construction-specific factors have contributed meaningfully to recent investment dynamics and cross-country dispersion.

Figure B1: Rolling Estimates of Investment Growth Trends in the Euro Area and Major Economies



Notes: The figure reports rolling estimates of the medium-term growth rate of real gross fixed capital formation, based on quarterly national accounts data at constant prices (chain-linked volumes). Trends are computed as the slope coefficient from a rolling regression of the log of investment on a linear time trend, using a 20-quarter window. The reported coefficients are annualised (multiplied by 400) and expressed in percentage terms. Markers highlight the estimated trend at selected reference dates (2008Q2, 2019Q4, and 2025Q4). Data are seasonally and calendar adjusted.

Figure B2: Real Gross Fixed Capital Formation Excluding Construction in the Euro Area and Major Countries



Notes: The figure reports real gross fixed capital formation at constant prices (chain-linked volumes) sourced from Eurostat national accounts. Panel (a) shows the euro-area aggregate, including and exclud- ing Ireland and the Netherlands to account for multinational-related distortions in intellectual property products. Panels (b)-(e) report national series for Italy, Germany, France, and Spain. Vertical dashed lines identify major macroeconomic phases, identified with reference to euro-area investment dynamics: pre-Global Financial Crisis expansion, Global Financial and Sovereign Debt crises, post-crisis recovery, COVID-19 shock, and post-pandemic expansion. Data are seasonally and calendar adjusted.

Appendix C. Asset-Level Drivers of Investment in Italy

This appendix provides a more detailed analysis of the determinants of investment in Italy by examining the contribution of the main drivers across different asset classes. While the main text focuses on cross-country patterns and aggregate dynamics, this section offers a country-specific deep dive aimed at better understanding the sources of heterogeneity highlighted in Section 5. In particular, it sheds light on how the relative importance of economic activity, financial conditions, confidence, and residual factors varies across types of capital, and how these differences relate to policy interventions and structural features of the Italian economy.

Figure C.1 reports the historical decomposition of investment growth across seven asset classes in Italy over the period 2003-2025, together with average contributions by sub-periods. The asset-level evidence refines the aggregate results by highlighting substantial heterogeneity in the relative importance of investment drivers across different types of capital.

Total construction is primarily driven by economic activity and financial conditions, with a limited role for confidence and uncertainty. The 2007-2013 contraction reflects the combined effect of weak economic activity and tight financial conditions, with an additional negative residual component pointing to possible further unaccounted constraints. In contrast, the 2019-2022 and 2022-2025 sub-periods show a strong recovery, with a positive contribution from financial conditions and a large positive residual, consistent with the impact of policy measures, most notably the Superbonus and NRRP, on construction activity.

Investment in residential construction exhibits the most pronounced post-crisis recovery among all asset classes, with the 2019-2022 sub-period showing the largest positive deviation from historical mean. The contribution decomposition reveals that financial conditions are the dominant positive driver in this period – consistent with the role of subsidised financing and tax incentives in stimulating residential renovation – while the residual component is also exceptionally large, reinforcing the interpretation that policy-driven factors beyond the model's standard regressors played a decisive role. The GFC-era contraction is broad-based, with both economic activity and financial conditions contributing negatively, in line with the sensitivity of residential investment to income expectations and mortgage credit availability. Notably, the most recent sub-period (2022-2025) shows a partial reversal, with financial conditions turning slightly negative, consistent with the phasing out of the *Superbonus* and the tightening of monetary policy by the ECB.

Other construction exhibits a distinctive pattern relative to residential structures, with financial conditions emerging as the dominant driver across most sub-periods rather than economic activity. This finding is consistent with the high sensitivity of non-residential construction to credit conditions and the user cost of capital, given the long payback periods and high capital intensity of this asset class. The crisis contraction of 2007-2013 is primarily driven by a large negative residual alongside negative economic activity, pointing to idiosyncratic supply-side disruptions or structural shifts not captured by standard aggregate indicators. The post-2022 period shows a remarkable surge, dominated by a very large positive residual component, which likely captures the strong impulse from public infrastructure investment associated with the disbursement of Next Generation EU funds – a factor not explicitly modelled in the current specification.

Machinery and equipment net of transport equipment investment is characterised by a prominent role of confidence and uncertainty, which constitutes the dominant negative contributor during the crisis period (2007-2013). Economic activity also contributes substantially to the contraction, while financial conditions play a secondary role. The post-2019

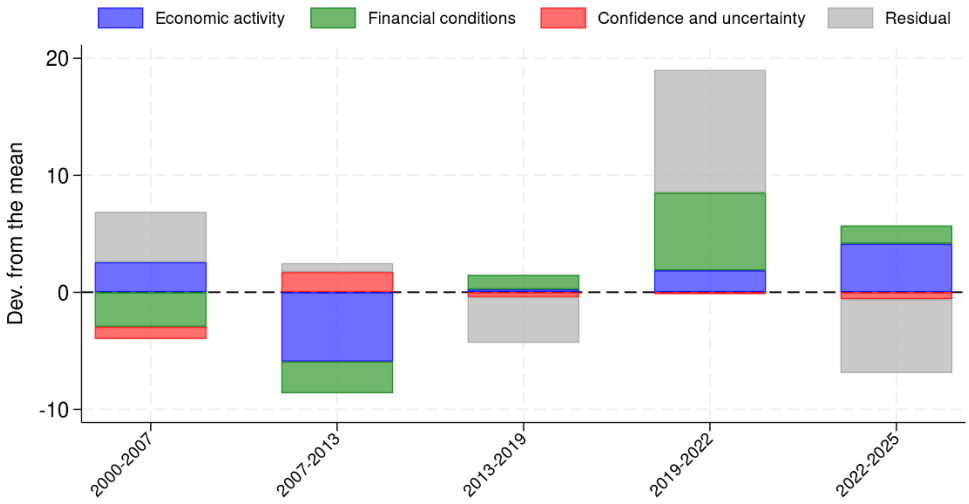
recovery is driven by a combination of economic activity, confidence, and financial conditions, with the bounce-back being particularly sharp following the COVID-19 trough consistent with the strong demand recovery and the Industria 4.0 and the "Transizione" incentive schemes, which subsidised investment in advanced machinery and digital equipment.

Transport equipment exhibits the highest volatility in the sample, with very large deviations from the mean at cyclical turning points. The COVID-19 shock generates an exceptionally sharp contraction in 2020 – dominated by confidence and uncertainty – followed by an equally sharp rebound in 2021, reflecting the extreme sensitivity of transport investment to demand expectations and the temporary disruptions to global supply chains. The large residual component across multiple sub-periods points to the importance of idiosyncratic factors – including sector-specific policy incentives for vehicle fleet renewal and the structural transformation of the automotive industry – in shaping transport investment dynamics in Italy.

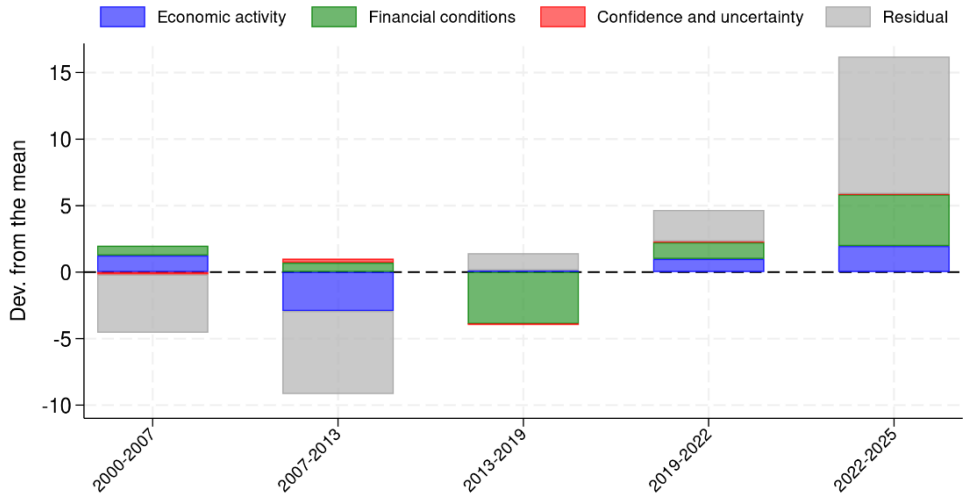
Intellectual property products display a highly distinctive pattern in the sample, characterised by an unusually large and persistent residual component across virtually all sub-periods. The contribution of standard drivers – economic activity, financial conditions, and confidence – is consistently modest in magnitude, suggesting that IPP investment in Italy responds primarily to factors not captured by aggregate macroeconomic and financial indicators. This finding is broadly consistent with the evidence that intangible investment is driven by firm-specific characteristics, sectoral dynamics, and innovation policies rather than by standard demand and financial conditions. The increase in IPP investment visible around 2015 may reflect the impact of a number of fiscal incentives geared towards R&D expenses (Istat, 2023). The post-2022 period shows a sustained positive residual, possibly capturing increased digital investment driven by the twin green and digital transition agenda of the European Union.

Figure C.1: Drivers of investment, by asset, for Italy

Panel (a): residential construction



Panel (b): non-residential construction



Panel (c): other machinery

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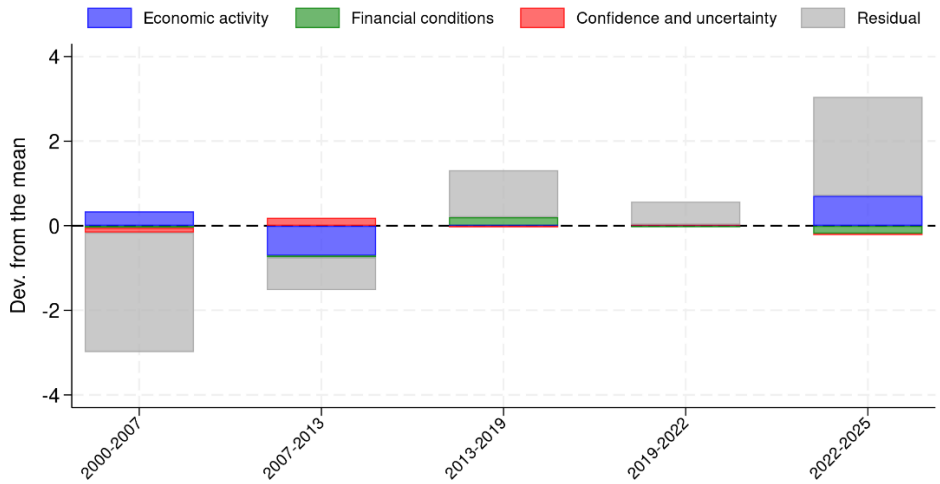
Panel (d): transport equipment

Panel (e): intellectual property products



Notes: The stacked bar charts display historical decomposition analysis of deviations from mean values for various gross fixed capital formation (GFCF) components in Italy across five distinct sub-periods: 2000q1-2007q4, 2007q4-2013q1, 2013q1-2019q4, 2019q4-2022q1, and 2022q1-2025q4. Each component's deviation is decomposed into four structural drivers: economic activity (blue), financial conditions (green), confidence and uncertainty (red), and residual factors (gray). The y-axis measures deviations from the mean in standardized units.